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UNIVERSITY OF ALBERTA

RELATIONSHIPS AMONG LEADERSHIP INDICATORS IN ACADEMICALLY GIFTED HIGH SCHOOL STUDENTS

by

ALAN L. EDMUNDS

A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN
SPECIAL EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA
FALL, 1993

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled RELATIONSHIPS AMONG LEADERSHIP INDICATORS IN ACADEMICALLY GIFTED HIGH SCHOOL STUDENTS submitted by ALAN L. EDMUNDS in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in SPECIAL EDUCATION.

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Date September 28, 1993

DEDICATION

I dedicate this thesis to Gail, Andrea and Lindsey.

ABSTRACT

This project sought to determine if specific relationships existed among four prevalent leadership indicators and whether differences existed across IQ or gender for the same indicators.

Ninety academically gifted Grade 12 students (45 males; 45 females) responded to measures of intelligence (OLSAT), past leadership behavior, actual leadership behavior, leadership skills (LSI), self and peer leadership ranking and each received leadership rankings from 4 teachers. There were significant positive relationships among actual leadership, past leadership and the LSI. Each of the six groups produced significant positive correlations between peer and teacher rankings. There was a significant positive relationship between IQ and the LSI but not between IQ and actual or past leadership behavior. There were no significant differences for any leadership indicators across IQ. Males outperformed females on task orientation and past leadership behavior but there were no gender differences for actual leadership behavior or the LSI. The LSI was revealed to contain 1 factor instead of the 9 claimed by the literature.

This research suggests that leadership should be measured by multiple indicators as suggested by the literature and that multiple indicators may be useful for measurement validation purposes and for the implementation of a variety of leadership elements. Also, despite having strong relationships with various leadership variables, the LSI appears to need further research.

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CHAPTER 1
INTRODUCTION

The concept of leadership training in gifted programs is one of recent emphasis given the pedagogic history of education. There is evidence that gifted children exhibit high levels of functioning in many of the facets deemed desirable in leaders, thus, leading others has been identified as a uniquely appropriate goal for the gifted. Since gifted children also represent potential leaders in all areas of society, it is important that they be identified early and that formal leadership training be provided. While many educators are making a conscientious effort to foster leadership processes and skills in gifted students, leadership education needs continued evaluation and development, both for the good of those students who are inspired and able in leadership and because society is dependent upon their emergence. In this way, gifted leaders will occur by design, not by chance.

Leadership does not appear to be a single trait phenomenon, rather, it manifests itself as a blend of characteristics within which above-average intelligence, social interaction skills, task commitment, and creative problem-solving abilities play major roles. Leadership style is viewed as being one of two prevalent types: 1) task orientation, a style stereotypically attributed to males, or, 2) people orientation, a style stereotypically attributed to females. Leadership also appears to be more a function of the situation and a process of the group as a whole than it is the work of an individual. This indicates that leadership is a function of what the individual <u>does for the group</u> and that an individual may not be the leader in all situations. Nonetheless, groups do not function effectively without individuals who possess leadership skills.

Leadership training in gifted education programs appears to be comprised of a common core of elements, the most important being engaging the gifted in leadership practice in real-life situations and the involvement of teachers as model leaders. This type of leadership training has been shown to improve social and academic skills of gifted children as well as improve their leadership abilities, thus indicates that leadership training ought to be a priority in gifted education. However, despite a set of common leadership elements, most programs have not emerged from a consolidated research base. The field is splintered into a variety of assessment instruments, implementation methods, and training programs, few of which appear to have been built upon proven research. Consequently, the relationships among these indicators has not been consolidated. In essence, leadership means different things to different people.

Since Marland (1972) defined leadership as a component of giftedness and advocated its place in gifted education, researchers in the field have stated the need for a suitable leadership assessment instrument. Such an instrument is essential for the identification of potential leaders, for determining the efficiency of leadership elements of gifted programs, and for the enhancement of our understanding of "leadership" as a construct. The four prevalent measures used to indicate leadership include; 1) formal assessment instruments (of which few have been validated), 2) various forms of election or nomination (which appear to be stable and reliable), 3) observed leadership behavior, and 4) past leadership behavior (an accepted predictor of future behavior). However, more research comparing these measures to leadership behavior is needed. Thus, the purpose of this study is to analyze the relationships among the four prevalent indicators of

leadership in a gifted population and to determine whether differences exist across IQ or gender for the same indicators.

CHAPTER II

REVIEW OF THE LITERATURE

The leaders of civilizations are revered, nearly to the point of being mythical. Their contributions to society are vast and many, yet they remain somewhat enigmatic. What is great leadership? Is it innate leadership qualities? Is it a learned behavior? Is it a set of qualities that emerges in group settings or organizational structures? Or, is it a series of human behaviors that surface because of the task at hand, ever changing to meet different leadership demands? Regardless of a nagging inability to definitively answer these questions, society is still enthralled with the notion of great leadership.

LEADERSHIP

Society's cry for leadership was long and loud during the latter stages of the depression, particularly with the onset of World War II. Educators, in their roles of responsible influence, felt compelled to heed this cry and make a contribution. Their conviction was stated in the title of the November, 1939 issue of the *Journal of the National Education Association (1939)* which read, Leaders Wanted. Also, there were numerous articles in the *Teachers' College Record* (1939) devoted to the same topic. Since then, many researchers have expressed the importance of leadership in all walks of life, but the reason for this need was made clearest by Isaacs (1973):

> A good leader can make the members of a group secure, needed, and wanted and be happily, creatively productive . . . Gifted, constructive leadership can increase the number of people who can perform giftedly, qualitatively and quantitatively, rewarding us all (p.111).

Thus, the need to determine who or what makes good leadership is also important. The literature contains many definitions of leadership, most of which involve " the influencing of others toward individual or group efforts and . . . persistence, forecasting, problem solving and the implementation of action" (Sisk and Rosselli, 1987, p. 3). Despite this strong rationalization for leadership and a workable definition, researchers have had much difficulty identifying who possesses leadership and who does not. The primary reason for this difficulty is that more than one theory of leadership exists; each theory affects the definition used, and it, in turn, affects the attributes looked for in leadership.

LEADERSHIP THEORIES

The literature has identified three major theories of leadership. They are trait theory, style theory, and situational theory.

Trait Theory

Trait theory has been around since the time of Aristotle and, for many years, the identification of personality traits was the predominantly accepted way to differentiate leadership among people. The classic work in leadership is Ralph M. Stogdill's *Handbook of Leadership: A Survey of Theory and Research (1974)* which examined four decades of leadership research. Stogdill reviewed 124 studies that examined the personality factors or traits that were viewed commensurate with leadership and concluded that personality trait theory could not be substantiated as the lone ingredient of leadership. Rather, according to Stogdill, personality trait theory was the approach that "tended to treat personality variables in an atomistic fashion, suggesting that each trait acted singly to determine

leadership effects" (p. 82). He concluded that leadership was the result of interactions between the leader and the group, not merely the possession of a sum of personality traits. It was with this in mind that he offered the following definition of leadership, a definition viewed as the exemplar in the field.

> The leader is characterized by a strong drive for responsibility and task completion, vigor and persistence in pursuit of goals, venturesomeness and originality in problem-solving, drive to exercise initiative in social situations, self-confidence and sense of personal identity, willingness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other person's behavior, and capacity to structure social interaction systems to the purpose at hand (p.81).

Stogdill considered his definition the middle ground between trait theory and extreme situational theory which "denied the influences of individual differences, attributing all variance between persons to fortuitous demands on the environment" (Stogdill, 1974, p. 82). While Stogdill's definition discounts the singularity of the trait approach, it does include a number of personality traits that appear to be common in many leaders; above-average intelligence, social interaction skills, task commitment, and creative problem-solving abilities (Karnes and Chauvin, 1986; Parker, 1983; Sisk and Rosselli, 1987; Stogdill, 1974).

Passow (1978) noted that leadership meant various things to various people in various situations and stated that a clearer concept of leadership was needed. He analyzed several studies and concluded that: a) leadership is not a trait that exists by itself; b) leadership may be facilitated by certain situations, positions, or skills; and c) leadership is a process of group interaction including the group's perception of leadership competency, the

needs and goals of the leader and the group, and the method by which an individual emerges as a leader. Passow stated that these elements would direct attention toward more effective leadership training because they separated leadership from a particular status position, thereby illustrating that many people are capable of leadership, "they need not be born with certain traits" (p.10). While Passow also suggested that traits did not play a predominant role, he indicated that one of the key factors of quality leadership was the potential of leaders and their attainment of the high level skills needed to be an effective leader. Cavedon (1974), in an extensive survey of leadership literature remarked, "Leadership is no longer understood as a function of personality structure alone, but as a situational interaction that has both personal and social features" (p.4). The contemporary view of leadership changed considerably with more attention being paid to what the leader **does**, not just focusing on what the leader **is**.

Style Theory

Lewin, Lippitt, and White (1939) conducted the exemplary work in leadership style theory. It resulted in leadership being classified into democratic, autocratic, or laissez-faire types of behavior. Another similar theory of leadership style is McGregor's (1960) which identified two views of leadership. The first view depicts power coming from the leader's position and portrays the subordinates as being lazy and unreliable, while the second view sees leadership being given to the group wherein the subordinates are considered creative and self-directed. Tannenbaum, Weschler, and Massarik (1961) later expanded on Lewin, Lippitt and White's (1939) work and placed leadership on a continuum from boss-centered leadership to subordinate-centered leadership. This view of leadership style

depicts two prevalent orientations or styles: 1) concern for task completion which includes setting goals and evaluating followers, and 2) concern for the harmony of the group, which includes valuing their opinions. Pasternack and Silvey (1969) found that children identified as leaders could also be characterized into two groups; task leaders who were work oriented and socioemotional leaders who were concerned about the interactions and feelings of others.

The leadership literature contains several other researchers who also report that leadership style is usually expressed in one of two prevalent forms; task orientation or people orientation (Fiedler, 1973; Isaacs, 1973; Lamb and Busse, 1983), including the extensive reviews of leadership by Stogdill (1974) and Bass (1981).

In addition, it is interesting to note that the sociological literature on group dynamics contains a large body of research which states that the success of group productivity is usually measured by determining 1) effectiveness - task orientation and, 2) efficiency - people orientation (Barnard, 1938; Goldhaber, 1990). Citing Barnard (1938), Napier and Gershenfeld (1985) stated:

> It has become standard to describe the adequacy of group performance in terms of both concepts: effectiveness (task orientation), the extent to which the group is successful in attaining its task-related objectives; and efficiency (maintainence orientation), the extent to which a group satisfies the needs of its members. Each factor can be examined independently of the other. Yet it is important to remember that a group expends energy on both aspects of performance (p. 205).

Given the above, it would be of interest to measure leadership style to determine the predominant style (task orientation or people orientation) of gifted adolescents.

Situational Theory

Situational leadership generally depicts individuals as having emerging leadership behaviors, depending on the situation at hand. The most popular approach to situational leadership theory has been Fiedler's (1967) contingency theory. Cavedon's (1974) extensive leadership review stated that "Fiedler's contingency model is the one that seems to provide the greatest number of answers in the study of leadership and its training as well as encompassing significant aspects of each of the other theories" (p.65). The basis of the contingency model is:

> The group's performance will be contingent upon the appropriate matching of leadership style and the degree of favorableness of the group situation for the leader, that is, the degree to which the situation provides the leader with influence over his group members. The model suggests that group performance can, therefore, be improved either by modifying the leader's style or by modifying the group-task situation (Fiedler, 1967, p. 151).

In short, the contingency model indicates that effective leadership will result when 1) the leader is accepted, 2) the procedures and goals of the group are clear, 3) the leader can invoke performance, and 4) the situation in which these elements will occur is favorable. Cavedon examined the effects of these four variables on leadership roles and concurred with Fiedler that variables which affect leadership could be subsumed into the favorableness dimension. In essence, the requisite attributes for productive leadership are contingent upon the external situation; to be effective, a person's mode of leadership might have to shift from one situation to another (Fiedler, 1967; Hersey and Blanchard, 1982; House, 1971; Yukl, 1981). In addition, Fiedler (1967) also felt that the nature of the situation was dependent upon the leader/follower relationship, the degree to which the leader perceived his

position of power, and the structure of the task at hand. As a result, a leader in one situation may not necessarily be a leader in other situations (Pasternack and Silvey, 1969; Stogdill, 1974), supporting the contention of Gowan and Demos (1965) that leadership is made up of "both personal and social features" (p.4).

In conclusion, there is evidence that each of the three leadership theories has merit, but no one theory explains every type of effective leadership. Rather, it appears that leadership is a construct comprised of components from trait theory, style theory and situational theory. In other words, leadership seems to need a particular combination of personal characteristics, social interaction skills and situations that demand leadership before it occurs.

LEADERSHIP INDICATORS

Despite the endeavors of many researchers and writers, an adequate indicator of leadership ability and/or potential does not appear to exist. The following is a brief synopsis of comments made by researchers who examined leadership instruments and found them wanting. Hollingworth (1939) concluded that indicators of leadership traits needed to be improved beyond personal ratings, as such ratings are subjective at best. Otey (1978) noted that leadership did not even exist as a test category in the 7th Mental Measurement Yearbook and commented that from a psychometric perspective, leadership had little to offer. Chemers and Rice (1973; cited in Karnes, Chauvin and Trant, 1984) concurred and stated that the lack of proper measurement indicators has accounted for the lack of interest in leadership. Plowman (1981) reviewed several available indicators (referrals, checklists, rating scales, self-esteem inventories, the Myers-Briggs

Temperament Scale, and the Leader Behavior Description Questionnaire) and concluded that little has been done to provide adequate leadership indicators. Additionally, Stutzman and Jawetz (1982) found the construct measured by an indicator of leadership/management abilities did not match the behavioral observations of people who were deemed to have leadership/management potential and also concluded that there was a void in leadership indicators. Thus, it appears that an accurate measurement of leadership ability has long been wanting in leadership research, whether that research be in business (House, 1971; McGregor, 1960; Stutzman and Jawetz, 1982) or education (Chemers and Rice, 1973; Hollingworth, 1939; Otey, 1978; Plowman, 1981).

There are four prevalent indicators that have been used to measure leadership abilities: 1) instruments, 2) nomination, 3) past leadership behavior and, 4) leadership tasks. It should be noted that most have been used separately from each other.

Instruments

The field of education, and more specifically the field of gifted education, has made sincere efforts to meet this need. Renzulli, Hartman and Callahan (1971) noted that a broader conception of giftedness and a need to widen the range of criteria for indentifying the gifted meant that teacher judgments were playing an increasingly important role in the placement of gifted students in programs for highly able youngsters (Cutts and Moseley, 1957; Pegnato and Birch, 1959). With this in mind, Renzulli, Hartman and Callahan (1971) developed the *Scale for Rating Behavioral Characteristics of Superior Students* (SRBCSS). The four characteristics of learning (8 items), motivation (9 items), creativity (10 items) and leadership

(10 items) that are included in the scale were established from an extensive literature review of traits of superior students. The authors indicated that the four character scales were separate entities however, they do not cite support for this statement. Validity for the leadership scale was established by comparing teacher ratings on the SRBCSS with peer ratings from sociometric techniques ($r = .35 - .84$, $p<.05$). Reliability was cited as good because of the stability of ratings over time and the consistency of ratings among judges.

Karnes, Chauvin and Trant (1984) noted that numerous other researchers had commented upon both the lack of an operational definition of leadership and the lack of leadership identification instruments. The authors conducted a study to determine the leadership potential of gifted students through the analysis of data obtained by the Leadership Potential Score (LPS) component of the *High School Personality Questionnaire* (HSPQ: Cattell and Cattell, 1975). The scores were then compared with whether students held at least one elected leadership position or not. It was noted that elected leaders' profiles revealed tender-minded, sensitive, group-dependent, tense, driven, and conscientious individuals. Karnes, Chauvin and Trant commented that this profile portrayed a vulnerable individual susceptible to unrealistic expectations. The results revealed that the LPS failed to differentiate between individuals who occupied at least one elected leadership position and those who held no such positions. In essence, this would appear to discount the LPS as an effective indicator of leadership potential. Although not reported by the authors, this writer noted that the elected leaders' profiles cited above contain characteristics of the two prevalent leadership styles. The first three profile characteristics are traits of people-oriented leaders while the last three are traits of task-

oriented leaders. Perhaps the leadership profile derived from the LPS warrants further investigation as a possible indicator of leadership style.

Prompted by an instrument that failed to differentiate between those who exhibited leadership behavior and those who did not (Karnes, Chauvin and Trant, 1984) and a desire to provide material to guide teachers in the fostering of leadership potential, Karnes and Chauvin (1986) developed the *Leadership Skills Inventory* (LSI). The LSI is classified into nine essential leadership categories determined from the professional literature; 1) Fundamentals of Leadership, 2) Written Communication Skills, 3) Speech Communication Skills, 4) Values Clarification, 5) Decision Making Skills, 6) Group Dynamic Skills, 7) Problem Solving Skills, 8) Personal Development Skills, and 9) Planning Skills. It is a self-administered, self-scored assessment tool that enables students and teachers to determine leadership strengths and weaknesses. These indicators serve as the base upon which a program of leadership skills development is built. In another study (Karnes, Meriweather and D'Ilio, 1987), the LSI was used as a pre/post instrument to determine if leadership training resulted in improved effectiveness as a leader, a position taken by Stogdill (1974). One hundred and thirteen students from Grades 6 to 11 wrote the LSI at the time of entrance to a one-week Leadership Studies Program, and again at its conclusion. The program entailed training in leadership concepts and skills taught through activities from the Leadership Skills Inventory Activities Manual. The authors attributed the increase in mean scores on the LSI to the intervention of the *Leadership Studies Program* (LSP) (Karnes, Meriweather and D'Ilio, 1987). However, this writer contends that this is an optimistic conclusion for the following reasons: 1) both the instrument and the training program were derived from the same literature review and contain the same nine essential

components, which suggests they were testing the program, not independently testing leadership skills as suggested by the LSI; and 2) the study had no way of controlling for students who did not learn anything more yet decided to purposefully increase their self-assessments.

Karnes and D'Ilio (1988) attempted to determine the concurrent validity of the LSI. Gifted students' scores on the LSI were compared with 4 teachers' ratings of who was a leader. There were no significant differences between the students' mean LSI scores and teacher ratings. The authors concluded that unless teachers are experienced in rating students' leadership skills, the LSI should only be used as a self-rating instrument. Thus, it appears that the LSI, as a measurement of leadership abilities, needs to be validated. Professional reviews of the LSI support this position. "Little is reported on the validity of the instrument . . . a better validation process should be established" (Eckart, 1988, p. 305 - 306). Lee (1988) stated that we do not know whether the leadership domains of the LSI can empirically be shown to exist, nor do we have any idea of their relationship with other measures of leadership characteristics. The major difficulty with the inventory lies in the inadequate establishment of its validity (Kerr, 1988). Despite validation concerns, the same reviewers also indicate that the LSI has merit as an instrument for measuring leadership. Lee indicates that "The best use of the LSI may be as an informal tool to assess an individual's strengths and weaknesses in leadership-type skills" (p. 440-441). Kerr found that the LSI holds promise as an instrument for self-assessment of leadership skills and Eckart concurred:

> Those who train youth for leadership roles both in school and in extracurricular settings could use the LSI and the accompanying activities manual to plan for growth and development of leadership

> skills . . . an examination of the literature by this reviewer has not found another instrument that serves a similar purpose" (p. 305-306).

Therefore, the LSI was used in this study for two reasons: 1) an instrument indicator of leadership skills was obviously required, and 2) the LSI appears to be the best instrument indicator of leadership skills available.

Nomination

A method that has consistently evidenced valid measures of leadership abilities and behavior is nomination. It can occur in many forms, the most prevalent being nominations by peers and/or significant others such as teachers, parents and respected community members familiar with an individual's abilities.

For example, Jarecky (1959) found that student and teacher opinions of who is a leader had a high relationship with leadership behavior. In an attempt to clarify the best identifier, or nomination, of student leadership abilities, Friedman, Friedman and Van Dyke (1984) compared self, peer, and teacher ratings of leaders with a leadership task. Students and teachers were asked to nominate leaders for student committees which would help plan part of the school curriculum. Self-ratings were obtained by each student responding to a five point scale of self-nomination as a committee leader. Peer ratings were obtained by students selecting the three people they felt were best suited to be committee leaders. Teacher ratings were obtained by teachers scoring each student on a four point scale of leadership potential. The results indicated that 1) self-nominations were the best single predictor of leadership behavior, 2) self/peer or self/teacher nominations were the best paired predictors, but 3) self, peer, and teacher

nominations combined predicted the highest levels of leadership behavior. The triple nomination method also predicted the four students who received the highest number of nominations. "Consequently, if one wants to identify students most highly gifted in leadership, only those nominated by all three sources should be selected" (p.93). The authors also concluded that self-nominations were best if the leader needed to be task oriented in style and that peer/teacher nominations were best if the leader was to be in a situation that demanded a people oriented leadership style. Peer and teacher ratings were also implemented by Renzulli, Hartman and Callahan (1971) to validate the leadership scale of the *Scales for Rating Behavioral Characteristics of Superior Students*. Kitano and Kirby (1986) found similar results as the Friedman, Friedman and Van Dyke (1984) study and added parent nominations as another useful indicator of this type.

The current study used self, peer and teacher nominations as a leadership indicator because they are a proven leadership measure that will result in a different assessment of leadership skills than the Leadership Skills Inventory (LSI) mentioned in the instrument section. In addition, a nomination-type leadership indicator may control for the socially desirable responses common to self-report instruments such as the LSI, a criticism raised by Kerr (1988). Friedman, Friedman and Van Dyke (1984) stated that the accuracy of the nomination method used to predict leadership performance should be compared to the accuracy of other existing instruments for identifying the leadership gifted. Additionally, they felt that nomination as a leadership indicator "should be compared to IQ scores to learn whether those rated high in leadership are also identified as gifted by this more traditional, widely used screening process" (p. 94).

Past Leadership Behavior

Past leadership behavior is usually determined by an individual's self report of previously held, or currently held leadership positions. These positions can range from being the captain of a sports team to Student Council President to being the head of a corporation. The most often used criteria for a credible leadership position is that the person in the position had to be elected or nominated.

Past behavior is generally accepted as the best predictor of future behavior and past leadership behavior is recognized as an excellent measure of leadership ability (Kitano and Kirby, 1986; Stogdill, 1974). Stogdill (1974) concluded that leadership behavior in elementary, junior and senior high school and college was predictive of later adult leadership. Bass (1981) studied the research on leadership and reported a number of findings pertinent to the identification of leadership potential. Of significant importance was his finding that the best predictor of leadership was prior leadership success. Similarly, Stogdill (1974) concluded that adult leadership behavior was more highly correlated with extracurricular leadership activities during the schooling years than was academic achievement.

Past leadership behavior was used in this study as a leadership indicator because it has proven to be one of the better indicators of leadership and it provided a different assessment of leadership skills than the instrument and nomination methods described above.

Leadership Task

The scoring of a task demanding leadership behavior has also proven to be an accurate indicator of leadership ability (Bass, 1981; Stogdill,

1974). Leadership tasks usually require individuals to work together to solve a problem. Each individual is scored by an external observer or by the other group members on various leadership behaviors.

Friedman, Friedman and Van Dyke (1984) scored a leadership task by measuring Renzulli's (1979) three-criterion conception of giftedness. Renzulli's conception includes: 1) creativity, 2) above-average ability (in this study it was leadership ability), and 3) task commitment. According to Renzulli, the integration and manifestation of all 3 criteria in response to a real situation denotes giftedness. This scoring mechanism appears valid given that leadership ability, creativity and task commitment are three of the four personality traits common to all leaders; the other being human interaction skills (Karnes and Chauvin, 1986; Parker, 1983; Sisk and Rosselli, 1987; Stogdill, 1974).

As task-orietntation and people-orientation are also prevalent indicators for determining leadership ability and each is used in this study's assessment of the leadership task, a discussion of the use of these indicators and the method of deriving these scores is provided here. The nature of this study revealed the need to provide 1) a measure of leadership style, 2) a measure of leadership ability, and 3) a need to determine whether leadership style differed across gender. It was fortuitous that leadership style is best measured by either task orientation or people orientation and that a proven method (Friedman, Friedman and Van Dyke, 1984) for measuring leadership ability is to combine scores for task orientation and people orientation, thereby allowing one measure to serve two purposes.

The literature is quite clear that the standard measure for group performance is the determination of task and people orientation (Barnard, 1938; Napier and Gershenfeld, 1985) and that group decisions reached

through cooperative deliberation are significantly superior to decisions made by individual members working alone and to majority rule (Barnlund, 1959). Furthermore, it has been shown that cooperative groups having to fulfill a collaborative activity show more positive responses to each other, are more favorable in their perceptions, are more involved in the task, and have greater satisfaction with the task (Church, 1962; Julian and Perry, 1967; Napier and Gershenfeld, 1985; Wheeler and Ryan, 1973). As a result of these cooperative efforts, group members are unlikely to work against each other (Gross, Kelley, Kruglanski and Patch, 1972), they are more efficient and produce a better quality decision (Deutsch, 1960; Napier and gershenfeld, 1985; Workie, 1974).

To achieve the above mentioned group harmony, research has indicated that small groups, usually defined as less than 7 members (Goldhaber, 1990), are most effective because face-to-face interaction is the primary defining factor (Hare, 1962). Hackman and Vidmar (1970) stated that a group of 5 seems to be optimal in a number of situations because the group is large enough to allow for a diversity of opinions and ideas, yet small enough to allow everyone to be heard. It is for the above reasons that 4 - 6 member groups were used to gather the data on task and people orientation in this study.

Despite their obvious validity as a leadership indicator, leadership tasks take tremendous amounts of time to plan, prepare, administer and score. "Possessing knowledge of the components of leadership and practicing effective leadership techniques are two completely different things" (Eckart, 1988, p. 306); thus, an actual leadership task was used in this study. It also provided a different assessment of leadership than the three indicators mentioned above.

In conclusion, Sisk (1985) reviewed the three major leadership theories of trait, style, and situation and listed instruments that may be used to assess each type. More importantly, she also reviewed other instruments that are not direct assessment tools but are complementary to primary leadership measures. Sisk concluded that no one measure of leadership would suffice: rather, a collection of measures should be used, and this collection should differ depending on the type of leadership desired. She listed five basic methods of leadership identification that are consistent with the four indicators used in this study:

1. Observation of behavior in group settings,
2. Choice of associates or voting,
3. Nomination or rating by qualified observers,
4. Selection, rating, and/or testing of persons occupying positions of leadership,
5. Analysis of biographical and case history data

(Sisk, 1985, p.48).

Given the above, it would be of interest to examine the relationships among the four indicators of leadership used in this study to more clearly determine their commonalities. Such an investigation may facilitate the future development of a comprehensive leadership indicator.

LEADERSHIP TRAINING IN GIFTED EDUCATION

The notion that the gifted are obvious choices for leadership training goes back as far as Plato. He was concerned about discovering the most able youth so that they might be educated for state leadership. Since that time, the search for excellent leaders has been foremost for society. Magoon (1980) emphatically argued that the leadership ingredient is lacking in our society, and as a result, society is led by mediocre leaders. He commented that despite having many more citizens to choose from, today's leaders in

politics, business, industry, education, and the arts are found to be much more wanting than those of the past. He stated that educators of the gifted should assume much of the responsibility for the training of future leaders because of their proximity to those who are most able to serve their fellow citizens - - the gifted. Magoon felt that leadership training programs should be purposeful and apply to real situations, be rigorously planned and evaluated, and should extend from the primary grades through college. He stated that training should begin with social skills such as sharing, cooperation, and responsibility and culminate with information on human behavior, rational thinking, management principles, and mentorships. Magoon stated that simulations and real-life community projects are viable methods of accomplishing this transfer of information.

Tannenbaum (1983) reported that the number of "Gifted Children" entries in the 1970 volume of *The Education Index* was less than half the number contained in the 1960 volume. The higher number of entries in the 1960 volume is attributed to Western society's need for academically capable individuals who could significantly advance the realms of science and technology. This was necessary because superior Soviet technology had launched the first manned space rocket in 1959. Unfortunately, attention to the gifted concentrated on mathematics and the sciences and characteristics that did not contribute to that emphasis, like leadership, were largely ignored.

However, gifted education, and specifically leadership training in gifted education, emerged as an area of keen interest in the early seventies. This was primarily due to Marland's (1972) landmark report, *Education of the Gifted and Talented*, to the U.S. Office of Education which identified the gifted as a segment of the population whose needs were not being met by

traditional education. Marland restructured the definition of giftedness into a multidimensional model of the phenomenon. Thus, the definition by which identification and programming would be governed now reflected the growing emphasis on differentiated talents that was being expressed by several educators and researchers. Included in Marland's report were three clear statements related to leadership. First, leadership was a behavioral objective uniquely appropriate for the gifted. Second, the gifted demonstrate superior abilities in most functions deemed desirable in leaders. Third, the gifted continue to exhibit such traits as adults (Hollingworth, 1939). The definition of giftedness now included leadership ability (Kitano and Kirby, 1986). The Marland report highlighted gifted education and provided the impetus for a plethora of research and writing about the gifted and their education, particularly leadership education.

Benefits of Leadership Training

Society needs leadership, in every sense of the word. It is also apparent that society will benefit from gifted individuals fulfilling leadership roles. In addition, there is evidence that gifted individuals need leadership training. Meriweather and Karnes (1989) surveyed parents to determine their perceptions of the leadership skills possessed by their gifted children. Parents felt that while their children had strengths in interpersonal skills, intelligence, and ambition - traits that are common in gifted individuals, they also felt that their children were weak in self-confidence, experience in delegating authority, and patience - skills that are common and vital components of leadership training.

In other research, Lewin, Lippitt and White (1973) found that exposure to inappropriate leadership role models did not allow children to develop

their leadership potential. The authors indicated that suitable leadership role models, leadership roles, and leadership training would allow for the development of these qualities in children. Sisk (1985) found that students appreciated affirmation that they had leadership potential.

Lamb and Busse (1983) were concerned that the two prevalent leadership styles of task orientation and group harmony were a potential conflict of leadership types and that their inclusion in leadership training may lead to individuals not developing as productive leaders. Their survey of middle school gifted students revealed a preponderance of children who felt that they lacked the power to meaningfully affect their situations. This type of passive leadership is indicative of people who have little faith in their task-skills or people-skills and it is seen as unhealthy for organizations and society. Lamb and Busse increased the students' leadership opportunities and responsibilities. This produced significant leadership score differences and significant increases in student preferences for leaders who exhibited a high degree of both people concern and product concern. Lamb and Busse concluded that the introduction of the two prevalent leadership styles had made their students "more powerful, more insightful, more influential people . . . the class which accomplished the greatest gain in leadership scores also demonstrated the greatest gain in academic achievement" (p.23).

Gonsalves, Grimm, and Welsh (1981) conducted a study to determine if leadership training would reduce some of the anxieties associated with gifted students. They identified anxiety as the gifted students' fear that their extraordinary intelligence would label them as weird. This is a common fear among the gifted and causes many gifted students to be less involved with their peer group, among other anti-social behaviors. Seventh and eighth grade students were involved in a leadership program designed to increase

their confidence through decision-making and assumption-of-responsibility activities. The authors found that pre- and post-surveys of leadership skills did not differ; however, students' written comments of improved attitude and behavior led the researchers to conclude that the program had been successful. Additional evidence of the program's success was found in its reduction of the anxieties of the students and their demonstrated positive changes in behavior; more of these students were chosen for school government, many participated in previously avoided school subjects such as drama, and others expressed excitement about subjects where dullness had prevailed. The authors felt that the program had provided the students with confidence and skills that they were eager to employ. This study supported Stogdill's (1974) position "that direct training in techniques of leadership result in improved effectiveness as a leader" (p.180).

In conclusion, research on the effectiveness of leadership training indicates that gifted children realize a multitude of positive results. In addition, leadership training has benefits that go beyond the training of leaders per se.

Gifted Education Leadership Programs

There are many gifted education leadership programs outlined in the literature. A select few will be portrayed to convey the general theme of leadership training inherent in most programs. Isaacs (1973) reviewed the leadership literature and addressed the many facets of leadership from the perspective of the gifted. She established that leadership and leadership training are essentially either task-oriented in terms of skills and guidelines, or people-oriented in terms of human relations and sensitivity. Isaacs stated

that past personal experiences can help determine leadership potential and listed twelve goals of self-improvement for leaders.

1- Being liked and respected by members of class;
2- Being able to influence others to work toward good goals;
3- Being able to influence others to be leaders;
4- Taking charge of a group;
5- Judging ability of others;
6- Solving problems and helping others improve;
7- Being worthy of job;
8- Being looked to by others;
9- Sensing what others want and helping them accomplish it;
10- Demonstrating leadership in several activities;
11- Working on getting elected to offices;
12- Enthusiasm - entering activities with goals for improvement
(Isaacs, 1973; p.110).

These twelve goals are notable for they indicate that leadership qualities, although demonstrated by the individual, are a composite of judgments by those surrounding the leader. This is consistent with previous findings on peer and teacher ratings. Isaacs concluded that leaders affect those who are led and that gifted leaders will bring out the best qualities that people have to offer.

The taxonomy of leadership training that Foster (1981) proposed is comprised of four models of leadership: 1) the great person model in which leadership is an overt expression of a distinct set of personality traits; 2) the small-group-dynamics model in which leadership is a skill-oriented process derived from the natural demands of the small group dynamic; 3) the group expectations model in which leadership is an artifact of attributional and symbolic needs of followers; and 4) the social roles model in which leadership is a formal, social role sanctionized by the structural characteristics of an organization. Foster labeled his taxonomy the "leading

approach", a situational process motivated by social pressures. It allows that leadership skills can be learned and, for this reason, Foster felt it was a natural choice for gifted educators. He also noted that gifted programs focus on active leaders, those responsible for maintaining and changing both the incidental and basic tenets of social processes. He distinguished these individuals from others whose basic function is to maintain a group or, who attain eminence by thoughtful reflection and production. Foster further advocated the previously mentioned notion that educators are in an excellent position to affect the growth of leadership.

> Engaging young children and youth in educational activities for the purpose of enhancing the possibility of their attaining eminence as action leaders in later life is certainly a worthy goal. Those of us interested in the field of gifted and talented have established programs intended to achieve that end (p. 23).

Foster maintained that the overlap between gifted education and leadership models has been recognized and substantiated but that it needs to be put into a useful form.

Plowman (1981) suggested a model for a leadership training program comprised of twelve skills separated across the dimensions of cognitive skills, personal skills and interpersonal skills.

Cognitive Skills
1) Figures out what is wrong: shows others how to solve problems.
2) Handles abstract ideas and sees a broad perspective: sees whole while others focus on parts.
3) Plans and follows through.
4) Projects into future seeing consequences of decisions.

Personal Skills
5) Gauges appropriateness of decisions, directions or suggestions and timing for them.
6) Copes with unpleasantness.

Interpersonal Skills

7) Listens to, observes, and recognizes the skills and abilities of others.
8) Interacts with others easily and has the ability to inspire confidence in others.
9) Perceives and articulates unstated feelings and recognizes and states goals.
10) Follows well.
11) Supports members of the group, accepts responsibility and is able to determine appropriate behavior.
12) Organizes others, directs activities, delegates responsibilities, stimulates actions and establishes the moods of the group (p. 15).

It appears that these skills could be used to determine leadership potential. Van Tassel-Baska (1988) commented that Plowman's model was so good that it would be the one to use if leadership curriculum were to be implemented separately from the regular gifted curriculum.

The *Leadership Skills Inventory Activities Manual* (Karnes and Chauvin, 1985) contains activities that could be used as a comprehensive leadership program. The program outlines leadership training in nine skills and concepts that were derived from the leadership literature: 1) Fundamentals of Leadership, 2) Written Communication Skills, 3) Speech Communication Skills, 4) Values Clarification, 5) Decision Making Skills, 6) Group Dynamic Skills, 7) Problem Solving Skills, 8) Personal Development Skills, and 9) Planning Skills. It is a leadership program that is flexible and, more importantly, student-directed. These 9 elements are widely discussed in the literature and they appear to be effective in fostering the development of leadership skills.

Cohen (1979) stated that values clarification was a vital theme of leadership programs for gifted students. The other themes of Cohen's curriculum were communication, planning, decision making, organizational

development, and creative problem solving. Cohen felt that these components were the indicators of what makes a person an effective leader.

Stacey and Mitchell's (1979) model of curriculum for gifted students combined leadership and futuristics which they defined as the knowledge of the process and rapid pace of change. It was their contention that education based solely on the past and present is no longer adequate preparation for life in the future. They outlined how leadership and futuristics come together in *A Model for Developing Leaders Through Future-Aimed Instruction*, and stated that skill training should have many interweavings between leadership and futuristics. The model is designed to enable students to work toward desirable futures, rather than being reactors to what confronts them.

Lindsay (1981) supported the notion of futuristics in leadership elements of gifted education and added that researchers and educators should pay strict attention to such variables as: 1) values education, 2) the gifted person's sense of making significant contributions, and 3) a rich mix of theoretical and practical aspects. While Lindsay felt these topics/traits indicate eminence more than leadership, he also emphasized a humanistic approach in which leaders effectively and productively deal with other people.

Magoon (1981) proposed a model for leadership programs based on school experience and research on learning, motivation, and personnel management. The emphasis of the model is on participatory democracy wherein students learn how to follow as well as lead. This suggests that not all leaders will lead in every situation, a much supported idea.

In evaluating several leadership programs, Sisk (1985) noted that all shared common strands, yet she emphasized that the essential element was a safe place for students to take risks and explore leadership with teachers

who can serve as models. She delineated leadership behaviors possessed by teachers of the gifted and discussed research-supported programs that attempt to foster such behaviors. Sisk concluded that the primary goal of leadership and leadership development should be "empowering others to develop their leadership" (p.53). This would suggest that teachers ought to be concerned with their own leadership skills as well as those of their students and that leadership programs have much to offer both.

Feldhusen and Kennedy (1988) proposed a model of leadership education that would prepare gifted and talented youth for their roles as future leaders. The authors describe five trends and directions that appear promising for future developments in leadership education for the gifted and offered them as a model for future leadership study:

1) Experience in predicting, planning, and extrapolating.
2) Explicit leadership training.
3) Thinking skills.
4) Experience in problem finding and problem solving.
5) Study of major concepts, themes, issues, and ideas.

(p. 226)

In addition, the authors outlined methods for implementing these five concepts in educational programs for the gifted.

Many other curriculum models for developing leadership skills in gifted students have been proposed (Casteel, 1978; Gelatt, Varnhorst, Carey and Miller, 1973; Renzulli, 1977; Schmuck and Schmuck, 1979) and all share concepts similar to those reviewed here. Feldhusen and Kennedy (1988) clearly addressed the state of leadership training in gifted education when they concluded that while education models and theories regarding

leadership appear to be workable, there is definitely a need for evidence of the effectiveness of the models.

Disparate Views of Leadership Giftedness

Not everyone has climbed aboard the band wagon of leadership training in gifted education. Leadership giftedness is an idea whose time has not yet come, stated Huckaby and Sperling (1981). Their position was that the issues of definition, aptitude, and predictive criteria of leadership have not been adequately addressed. They argued that the result could be: 1) labeled students who cannot meet society's expectations, 2) a selection process that rejects students who have actual leadership potential, 3) programs that interfere with the natural processes that nurture leadership, and 4) leaders that are skilled in leading but have no direction or sense of vision. As an alternative, the authors suggested that educators strive to create an environment that simultaneously contributes to both quality education and the development of leadership for all students; however, they do not carefully detail this suggestion. Despite the merits of their suggestion, there appear to be a number of flaws in their argument. For example, the authors argued that "sociograms could only be acceptable if we conceptualize leadership as comparable to popularity. Teacher nominations would probably discriminate against those whose leadership may be real but that is exercised in socially unacceptable or personally threatening ways" (p. 21). The previously mentioned works of Isaacs (1973), Jarecky (1959), and Renzulli, Hartman and Callahan (1971) have firmly established that peer and teacher ratings are consistent with actual leadership behavior, thereby dispelling the notion of leadership as popularity. Even in its narrowest sense, leadership involves the harmonious interaction of people

working toward a common goal. In this regard, socially unacceptable or threatening leadership skills are without merit (Hollingworth, 1939).

Willings (1983) expressed concern with the whole concept of leadership roles. He suggested that the possible reason for gifted children not fulfilling leadership expectations is that they are functioning in a role that is not suitable to them and that this type of continued frustration can lead children to become isolates. By encouraging gifted children to discover which leadership role is natural for them, Willings stated that they will be less confused by the concept of leadership and authority, thus increasing their effectiveness.

Lindsay (1979) had two major objections to leadership programs. First, he noted that all of the gifted education programs that he had reviewed were without moral education components. He also stated that the difference between leadership training and leadership education is that education allows for participation in one's destiny through innovation and discovery, whereas training is a skill development process toward pre-established goals. While he gave credit to the acquisition of leadership skills, Lindsay proclaimed well-trained or humanistically educated leaders as being most beneficial to society. Thus, he felt moral education was essential for leadership programs or the result may be cynical, pragmatic leaders or off-beat leaders that society would not be happy with. Second, Lindsay stated that values clarification, a frequent component of moral education, is inappropriate for the gifted for it is not comprised of a hierarchy of perceptions or skills, thereby not differentiating the gifted from the non-gifted. Lindsay felt that a triad benchmark of cognition, moral development, and creativity should be used to determine if leadership programs are fulfilling

their task; however, he did not present methodology explaining how these concepts could be implemented.

LEADERSHIP AND INTELLIGENCE

Above-average intelligence is seen as a characteristic common to leaders in most fields (Karnes and Chauvin, 1986; Parker, 1983; Sisk and Rosselli, 1987; Stogdill, 1974). In fact, there is some evidence that superior intellect is a necessary component for leadership. Hollingworth (1939) and Jarecky (1959) substantiated this notion and the position was later supported by Brumbaugh and Roscho (1959), Freehill (1961), and the meta-analysis of Gowan and Demos (1965).

Through the 1940's, society's view of giftedness evolved into a more liberalized interpretation and leaned toward an inclusion of leadership. This was evident in Wesman's (1956) description of the gifted, which is very similar to the current definition.

> The child who displays unusual understanding of the physical forces in his world, and the child who exhibits unusual understanding and leadership of his peers, have been taking their place alongside the child who excels in performance on a test of mental ability (p.40).

Wesman was not alone in his description of a wider range of criteria in the process of identifying the gifted and talented. Getzels and Jackson (1958) also addressed the expansion of the meaning of giftedness and called attention to the need for a broadened conception.

Nowhere in the literature does a discussion of giftedness not also include a discussion of intelligence. In essence, superior intelligence is the *sine qua non* of giftedness and it is included in the standard definition;

> Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance . . . . Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:
>
> 1. General intellectual ability
> 2. Specific academic aptitude
> 3. Creative or productive thinking
> 4. Leadership ability
> 5. Visual and performing arts
> 6. Psychomotor ability (Marland, 1972, p. ix).

Hollingworth's (1939) early work is viewed as the hallmark editorial on leadership and giftedness and it established the tenets of why leadership should be an educational focal point for the gifted. Her studies of children who tested in the top one percent of the juvenile population found that 1) superior intelligence is an indispensable trait of leadership, 2) gifted children more frequently possess qualities which thinkers deemed desirable in leaders, and 3) these children continued to exhibit such leadership traits when they were full grown. The criteria traits of Hollingworth's study were the same ones used by Harvard College to determine who would receive National Scholarships. The criteria of "integrity, independence, originality, creative imagination, vitality, forcefulness, warmth, poise and stability" (p. 577), when correlated with intelligence, produced correlation coefficients around 0.50. Hollingworth also determined that a leader must be more intelligent than those who are led but that this IQ difference should not exceed 30 points if effective leader/follower patterns were to form. She also stated that, despite superior IQ, "rascals, tyrants, and fanatics" were not desirable leaders. Later, the leadership range of intelligence was placed between 125 and 144 IQ (Hollingworth, 1942). In conclusion, Hollingworth

was in agreement with Plato's tenet that the most able should be selected for leadership training.

Jarecky (1959) studied social giftedness, an exceptional capacity for mature productive relationships with others. Since the Hollingworth (1939) research, Jarecky's study was the first to actually address leadership from the specific perspective of gifted children and how important leadership can be when implemented by gifted students. He felt that leadership giftedness and/or leadership abilities practised by the gifted were a neglected human resource and that society could not over-estimate the contributions to be made by the socially gifted adolescent. Jarecky compared measures of peer rating, peer description, teacher rating, teacher ranking, self concept, social competence, and IQ with anecdotal records of leadership behavior for 76 students in two separate classes. The behaviors of students who scored high on both the measures and anecdotal records were then compared with traits of social giftedness derived from the literature. Peer and teacher opinions reflected the most substantial relationship with observed leadership behavior. Furthermore, the three highest composite ranking students from each class exhibited behaviors similar to social giftedness, whereas the average and low rated/ranked students showed practically no socially gifted behavior. Jarecky concluded that peer and teacher ratings were effective indicators of leadership qualities and that the socially gifted were of above average intelligence. Finally, Jarecky likened the results of his work with gifted adolescents to the farmer who ignores promising sprouts; if not recognized and nurtured early, there will be no harvest.

The question that Pasternack and Silvey (1969) explored was whether higher IQ students would be chosen as leaders by a group of gifted children. The highest IQ students (IQ ≥ 147) averaged significantly more

votes than the total group (mean IQ = 140) and the lower IQ group (IQ < 132). In fact, the higher IQ students collectively received 60% of all votes cast. These results support Hollingworth's findings that the leader is likely to be more intelligent than the group led.

All of the studies cited above would indicate that there appears to be a relationship between leadership and intelligence, hence, it was decided that it would be of interest to determine whether this relationship prevails in this study.

GENDER DIFFERENCES IN LEADERSHIP

Leadership style theory has been expressed in various forms. As outlined earlier in this review, the most prevalent perspectives of leadership style are a) task orientation, a preference for the completion of the task, **or** b) people orientation, a preference for maintaining the social well-being of the group. Concomitantly, research on gender and leadership styles has resulted in three perspectives: 1) males and females do not exhibit different styles of leadership, or 2) females must be task-oriented to be effective, or 3) males are task-oriented and females are people-oriented in leadership style.

No Gender Difference

Bartol and Wortman (1975) studied civil service employees of a large hospital and found that there was no difference in the way male and female leaders treated subordinates and that the gender of the leader had little effect on perceived leader behaviors and/or job satisfaction. Dobbins and Platz (1986) did a meta-analysis of seventeen studies of gender differences in leadership and found that gender was not a significant influence of leader behavior or subordinate satisfaction. They also stated that leader

effectiveness across gender only differed when studies were conducted in laboratory settings. The effect of gender role characteristics on emergent leadership effectiveness were examined by Goktepe and Schneir (1988). They concluded that there was no difference between male and female leaders' effectiveness and that androgynous gender roles received the highest ratings of leadership effectiveness.

Females Must be Task Oriented to be Effective

Two studies conducted by Megargee (1969) examined the influence of gender roles on the manifestation of leadership. High and low dominance men were paired with high and low dominance women to form four different gender/type combinations. Each group was given a mechanical and a clerical task to perform. In both cases, high dominance women were reluctant to assume leadership roles when matched with low dominance men. Megargee concluded that females needed to be more like males to be good leaders; in other words, females had to be task oriented. Maier (1970) found that females were as skillful leaders as males except when their leadership roles called for creative problem solving abilities in an unstructured, problem solving/leadership situation, a male orientation. Bartol (1974) examined female leadership and found that females with a high need for dominance, a behavior typical of men, were perceived by followers as being more competent. Schein (1975) concluded that for females to be successful managers, they would have to have characteristics, attitudes and temperaments more commonly ascribed to males and added that female managers were as likely as male managers to promote males for the same reasons. Chapman (1975) studied male and female military personnel and reported that there were no significant differences in effective leadership

style between males and females. However, the leadership style exhibited by both groups was that of task orientation, a style prominent in males. Russell, Rush and Herd (1988) studied female university students to compare effective leadership behavioral expectations with gender congruency. The study revealed that an effective female leader was perceived as having characteristics that are more congruent with the male model of leadership. Cann and Siegfried (1987) looked at leadership effectiveness and found that followers would prefer male-like managers and that managers would prefer female-like followers. They also found that a bias for male managers remained once gender neutral traits were removed.

Males are Task Oriented and Females are People Oriented

Since the 1950s, theorists have proposed that males and masculinity are typically associated with task orientation - - a cognitive focus on getting the job done or the problem solved, whereas females and femininity are typically associated with an expressive orientation - - an affective concern for the welfare of others and the harmony of the group (Parsons and Bales, 1955). There is also evidence that girls are more relationship oriented (Douvan and Adelson, 1966; Gavin and Furman, 1989; Hallinan, 1980) and that boys engage in more dominance struggles; therefore, boys are more likely to report having distinct leaders than girls (Gavin and Furman, 1989; Savin-Williams, 1976; 1980). An investigation of the dilemma facing female leaders led Chapman and Luthans (1975) to conclude that females were more likely to exhibit a relationship oriented leadership style comprised of such characteristics as understanding, helpfulness and intuitiveness. On the other hand, males were more likely to be autocratic and task oriented. This finding was tested by Bartol and Butterfield (1976) who concluded that when

managers became more like their gender opposites, they were perceived as being less effective managers. Dobbins (1986) reported that the corrective actions taken by female leaders were more affected by equity and equality and by the gender of poor performing employees, whereas male leaders selected corrective actions based solely on equity.

In conclusion, it appears that there are two major issues regarding gender and leadership style. There is evidence that 1) there are no gender differences in leadership style, or 2) gender differences center around task orientation and people orientation; the two styles of leadership referred to as the prevalent leadership styles (Fiedler, 1973; Isaacs, 1973; Pasternack and Silvey, 1969; Stogdill, 1974). In the case of the latter being prevalent, there is also evidence that female leaders need to be more like male leaders to be effective. An analysis of whether there is a difference in leadership style between males and females is therefore warranted.

Statement of the Problem

The state of leadership in gifted education reflects a multiplicity of opinions, instruments, programs and research bases. As a result, the field is splintered into numerous quasi-related parts. Unfortunately, this sector of gifted education is the same as many others in this regard in that "it is relatively common to find information on gifted education unsubstantiated by research or theory." (Carter and Swanson, 1990, p. 116).

The purpose of this study was to examine the relationship among various measures or indicators of leadership ability. This research was conducted within the gifted adolescent population as it is this group that will be soon called upon to assume and perform leadership roles (Karnes, Meriweather and D'Ilio, 1987; Magoon, 1980). The study examined the relationships among gifted students': 1) actual leadership behavior, 2) evidence of past leadership behavior, 3) leadership scores from a formal assessment instrument (LSI), and 4) self, peer, and teacher nominations of who is a leader. The study also examined whether leadership style is differentiated by gender or whether leadership abilities are differentiated by IQ level.

Definition of Terms

The operational definitions of leadership, gifted students and intelligence used in this study are presented.

Leadership

Leadership is all that is involved in actively maintaining and changing both the incidental and basic tenets of social processes. Through this type of leadership, it is implied that leadership skills can be taught and learned and

that leadership roles are adaptable to various situations. This is clearly distinguished from actions that merely maintain a group or a set of rules. In this study, leadership is operationally defined as that which is measured by the leadership indicators used in this study and described in the following section: 1) an actual leadership task; 2) evidence of past leadership behavior; 3) an assessment measure of leadership; the Leadership Skills Inventory (LSI), (Karnes and Chauvin, 1985); and 4) self, peer, and teacher ranks of who is a leader.

Gifted students

Gifted students are those students who have demonstrated high academic achievement (Marland, 1972). In this study, this term is operationalized by the criteria of having attained a Grade 12 average of 70% or better in the core curriculum subjects of Mathematics, Science, English and Social Studies.

Intelligence

In this study, intelligence is that which is measured by the Otis-Lennon School Ability Test (OLSAT), Form S, (Otis and Lennon, 1982). According to the Otis-Lennon Manual for Administering and Interpreting, the concept that underlies the OLSAT is that of a general intellective ability with emphasis on verbal-educational abilities. The OLSAT was selected because of its favorable psychometric qualities (see Chapter III - - Method) and its ease of administration for data gathering purposes.

Significance of the Study

The literature contains evidence that leadership has been researched from many perspectives. It also contains evidence that leadership has been researched from each of the perspectives that comprise this study, namely:

1) the four prevalent leadership indicators measured by:
    a) instruments,
    b) nomination,
    c) past leadership behavior and
    d) leadership task,
2) intelligence, and
3) gender.

In addition, some research has examined leadership by combining some or several of the above listed perspectives. However, it is the combination of all of the above perspectives examined in this study that makes it unique. Gifted adolescents, specifically Grade 12 students, were selected as the sample because little leadership research has been done with this population yet they will be the next generation of potential leaders.

The review of the four prominent leadership indicators in this section reveals that while each indicator has merit, a single indicator of leadership is not satisfactory. Furthermore, several researchers have stated that an appropriate leadership indicator would be a composite of the four indicators discussed above. By examining the relationships among the four leadership indicators, conclusions can be made about combining them to form a comprehensive leadership indicator.

Only when leadership properties, as portrayed by the four leadership indicators, are clearly understood can the implementation of leadership elements facilitate the education of gifted students. The practical significance

of this is that leadership educators and trainers will have a clearer view of what types or combinations of leadership indicators will be most effective in evaluating leaders and/or leadership training programs.

> An academic discipline is defined by its scientific literature. The ideas, hypotheses, theories and research findings recorded there serve to organize and direct the field. The literature provides the foundation for innovative practices and the direction for future research and development efforts (Carter and Swanson, 1990; p. 116).

Without a clearer view than the one currently available, leadership in every facet will continue to mean different things to different people.

Limitations of the Study

This study is limited to its examination of the relationships among the four prevalent indicators of leadership within an academically gifted adolescent population. While other leadership indicators are available, all are variations of the four selected and none are cited as having influence within the field.

A limitation of the leadership task is that the task orientation and people orientation scores which are summed to form the leadership ability score were rank scores from 4-6 member groups. While the literature on leadership ability indicates that this is the best mechanism to obtain these scores, it will limit any generalizations to this particular type of leadership score.

A limitation of the LSI is that reviewers have clearly stated that it needs further validation work.

This study is limited to its definition of academic giftedness - - an average of 70% or better in the four Grade 12 core subjects of Math, Science, English and Social Studies.

Research Questions

This study was exploratory in nature, therefore research questions were posed rather than hypotheses.

Question 1

Are there significant positive relationships among actual leadership behavior, past leadership behavior and leadership skills (LSI)?

Question 2

Are there significant positive relationships among actual leadership behavior, past leadership behavior, the LSI, and self, peer, and teacher ranks within each of the six groups of students?

Question 3

Are there significant positive relationships between IQ and the four measures of leadership used in the study?

Question 4

Are there significant differences in performance on actual leadership behavior, past leadership behavior and the LSI across IQ levels?

Question 5

Are there significant differences in performance on task orientation, people orientation, actual leadership behavior, past leadership behavior and the LSI across gender?

CHAPTER III
METHOD

Introduction

In this chapter, information pertaining to the sample, instruments, data collection and data analysis is presented. The study examined the relationships among gifted students' scores on the following measures:

1) an assessment of leadership skills,
2) self, peer, and teacher leader ranks,
3) evidence of past leadership behavior,
4) an actual leadership task,
5) intelligence, and
6) gender.

Sample

All of the students of the participant school met or exceeded the two Grade 10 admission requirements; a) an average of 70% or better in the core subjects of Mathematics, Science, English and Social Studies, and b) an indepth individual interview with an administrator of the school. One hundred and forty-nine grade 12 students were invited to participate in the study. Only 7 students declined and another 28 students did not participate due to absences and a previously planned field trip. One hundred and fourteen students elected to participate in the study and received parental consent to do so. The data gathering for this study was completed and 3 weeks later, the 1st Semester marks were released. The school provided each student's average based on the four Grade 12 core subjects of Mathematics, Science, English and Social Studies. Only those students who

had a 70% average or better in the four core subjects were selected as the sample for the study.

Thus, the sample consisted of 90 academically gifted Grade 12 students from an urban Alberta high school; 45 females and 45 males. It is important to note that the sample came from an academic "honors" high school that purposefully screened the students entering Grade 10. Thus, the sample students could be enrolled in the regular high school program, the honors high school program, the partial International Baccalaureate program, or the complete International Baccalaureate program. None of the sample students had previously participated in any sort of leadership course or program, although 94% indicated that they would like to do so.

The mean academic average of the sample was 81% and 63 percent of the sample had an academic average ≥ 80%.

Table 1

Academic Achievement Data

N = 90	Mean = 81%	St. Dev. = 6.0	Range = 70 - 93%

In addition, the mean IQ of the sample (derived from the OLSAT) was 126 and 74% of the sample had an IQ ≥ 120.

Table 2

I Q Data

N = 90	Mean = 126	St. Dev. = 8.4	Range = 101 - 149

The data in Table 1 reveal that the sample were gifted students according to the criteria of Marland's definition (1972): 1) they were identified by professionals (school personnel and this researcher) as being capable of high performance, and 2) they demonstrated achievement and/or ability in the area of specific academic achievement.

The current study required the students to rank each other on two leadership criteria. In order to validly rank a collection of individuals, one must be well acquainted with all of the individuals. In this study, 93% of the sample had attended the school since Grade 10; thus, the vast majority of sample students had spent 2 1/4 academic years with each other prior to the study. In addition, all of the 4 teachers who provided rankings on the same two leadership criteria had been at the school prior to the sample students arriving in Grade 10; thus, they had also spent 2 1/4 academic years with the students. Furthermore, each teacher had taught each student for at least 3 different courses.

Instruments

1) Actual Leadership Task

This task required that the subjects 1) generate creative and novel ideas, 2) participate in a group problem-solving situation in which their

leadership ability could emerge, and 3) indicate their commitment to participate in an endeavor that would benefit the entire group. This leadership task was modeled after the one used by Friedman, Friedman and Van Dyke (1984).

The creative component of the task involved the generation of topics to be used in an enrichment program. The enrichment program, Expanded Learning Curriculum (ELC) (Edmunds, 1989), is a method of expanding gifted education programs wherein students are exposed to stimulating topics that enhance the regular curriculum, a concept advocated by the growing literature on differentiated curricula for the gifted. This researcher explained ELC to the subjects and a detailed example of a successful topic used in another situation was illustrated (Appendix I). The students were then asked to individually generate interesting topics that they would like to see used if their program were to include an ELC component. Each student was given 10 minutes to develop a list of new topics. The instructions emphasized that the student's focus should be on generating as many uniquely creative and different topics as possible (Appendix I). The time limit of ten minutes and the above mentioned instructions are widely used when creative endeavors of this type are administered (see Torrance Test of Creative Thinking Norms Technical Manual, 1974a).

The leadership ability component involved each student being assigned to a 4 - 6 member group that contained a minimum of 2 females and 2 males. Within these criteria, the groups were formed by applying a random number table to the alphabetical class list. Efforts were made to have the same number of students in each group. The composition of the small groups in this study differed from the work done by Friedman, Friedman and Van Dyke (1984) who predetermined the student leaders and

then assigned them leadership roles within their small groups to perform the consensus task. It was felt by this researcher that the use of this method in this study might predispose the task orientation or people orientation behavior of some group members. The research is clear that the group expends energy on both of these aspects of leadership performance and that each aspect can be examined independently of the other (Napier and Gershenfeld, 1985). Leaders were not identified within the groups of this study so that each member would have equal opportunity to exhibit and be scored for task and/or people orientation.

Each group was given an identical copy of the composite list of all topics generated and instructions to reach consensus regarding the rank order of the eight topics to be used in their ELC component within a 20 minute time limit. Once consensus was reached, each student was asked to rate each of the other group members on two five point scales: 1) how well the individual helped get the job done (task orientation), and 2) how well the individual helped the group feel good about working together (people orientation) (Appendix II).

The task commitment component involved each student responding to a request to help work on the agreed upon 8 topics to be used in their ELC program (Appendix II). They could commit from 0 to 10 hours of work.

The scoring of the actual leadership task was based on Friedman, Friedman and Van Dyke's (1984) method of measuring Renzulli's (1979) three-criterion conception of giftedness. Renzulli's conception includes: a) creativity, b) above-average ability (leadership), and c) task commitment.

a) Creativity

The creativity score was derived from each student's combination of a) fluency, b) flexibility, and c) originality scores on their generated list of topics (Torrance, 1974b). All of the topics generated by the sample (3,253) were evaluated by Alberta Education curriculum consultants in Math 30, English 30, Social Studies 30, Biology 30, Chemistry 30 and Physics 30, the Grade 12 core subjects. The ELC program (Edmunds, 1989) and the purpose of the topic list was explained. The curriculum consultants were instructed to identify only those topics that could definitely be used as an enrichment topic for their subject. This resulted in 872 topics which fell under 17 different categories (see Appendix VI). The categories were determined by six educators who arrived at consensus for the 17 categories and the placement of each topic in its category.

Fluency, flexibility and originality scores were compiled in the following manner:

a) the number of topics generated minus duplications constituted the fluency score (see descriptive data in Table 3 below);

b) the number of different categories that a student's topics fell under constituted the flexibility score, with a maximum score of 17 (see descriptive data in Table 3 below); and

c) each of the 872 topics were tallied according to the number of times that topic was suggested by a student. A student's originality score was derived in the following manner:

Criteria	Score
1) For each topic suggested by only that student	2 pts.
2) For each topic suggested by only one other student	1 pt.
3) For each topic suggested by three or more students	0 pts.

(see descriptive data in Table 3 below).

Fluency, flexibility, and originality were each scored on different scales. Accordingly, the three types of scores were converted to 'z' scores so that they could be summed to produce each student's creativity score.

Table 3

Fluency, Flexibility and Originality Raw Data
N = 90

	Mean	St. Dev.	Range
Fluency	16	8.9	0 - 42
Flexibility	6.5	3.0	0 - 14
Originality	13.8	9.7	0 - 48

Every student responded with several topic suggestions but, as indicated in Table 3, there were several students who suggested topics that did not fit the above mentioned criteria and received a score of zero. While the maximum possible scores for fluency and flexibility were 872 and 17 respectively, no student attained those scores.

b) Leadership Ability

The leadership ability scores were produced by a variation of the method used by Friedman, Friedman and Van Dyke (1984). The leadership ability score was derived from each student's score on two 5-point scales (see Appendix II). They were; 1) "How much they helped the group to get the job done well," (Task Orientation) and 2) "How much they helped the group to feel good about working together," (People Orientation). These categories correspond to the two primary leadership activities most frequently reported in the literature (Stogdill, 1974). Thus, each student received 4 - 6 scores for each category of task and people orientation. Averages for each category were computed and both averages were summed to constitute a leadership ability score for each student. Thus each student received a Task Orientation score ranging from 1 - 5, a People Orientation score ranging from 1 - 5, and a Leadership Ability score ranging from 1 - 10 (see descriptive data in Table 4 below).

The leadership style of the sample was split between task orientation and people orientation, indicating that the sample did not exhibit a predominant leadership style. Arithmetic calculations reveal that 40 students had a higher score on 'task' and 43 students had a higher score on 'people' while 7 students had no difference in scores.

c) Task Commitment

The task commitment scores were produced by the method used by Friedman, Friedman and Van Dyke (1984). The task commitment score was derived from each student's response to the following item: "I would be willing to devote (0 to 10) hours of work to help prepare and implement the 8 topics selected for the ELC program" (see Appendix II). The number of hours

recorded constituted their task commitment score (see descriptive data in Table 4 below).

Table 4

Task Orientation, People Orientation, Leadership Ability and Task Commitment Data
N = 90

	Mean	St. Dev.	Range
Task Orient.	3.7	.83	1.7 - 5.0
People Orient.	3.7	.79	1.9 - 5.0
Leadership	7.3	1.5	3.6 - 9.9
Commitment	5.2	2.7	0 - 10

Leadership ability and task commitment were also converted to 'z' scores in order that they could be summed with creativity to produce each student's score of "actual leadership behavior." The above mentioned scoring mechanism was adapted from similar research done by Friedman, Friedman and Van Dyke (1984) but the score conversions and summation were methods of this particular study.

2) Self, Peer, and Teacher Ranks

Scores for self, peer, and teacher ranks of leadership were derived in the following manner. Each student was given an alphabetic listing of all students in his/her Social Studies 30 class and asked to rank order the list,

including him/herself, as to who would be the best leader of a committee to carry out the 8 ELC topic sessions (see sample, Appendix III). Four classroom teachers (including the Social Studies teacher who was teaching the subject to each student at the time of the study) were asked to rank each class in the same way (see sample, Appendix IV).

Each student received 3 types of rank values: 1) one self rank value, 2) a number of peer rank values equal to the number of students in the class minus himself/herself, and 3) four teacher rank values. In each case, the rank value was inversely proportional to the student's rank position. For example, the highest ranked student in a class of 15 received a score of 15, the next highest ranked student in that class a score of 14 and so on. The rank values were converted to rank scores for each student according to the following methods:

1) the self rank value was divided by the number of students in the referent group resulting in a self rank score expressed as a percentage (i.e. student "X" ranked him/herself first out of 10 students; the inverse score would be 10 divided by 10 thus; the self rank score would be 100%);

2) peer rank values were summed and divided by the maximum score resulting in a peer rank score expressed as a percentage (i.e. the nine other students all rank student "x" first; the summed inverse scores would be 90 divided by the maximum score which is 90 {9 scorers X 1st place (10) = 90} thus the peer rank score would be 100%); and

3) four teacher rank values were summed and divided by the maximum score resulting in a teacher rank score expressed as a percentage (i.e. the four teachers all rank student "X" first; the summed inverse scores would be 40 divided by the maximum score which is 40 {4 scorers X 1st place (10) = 40} thus the teacher rank score would be 100%).

This method produced self, peer and teacher rank scores for each student. (see descriptive data in Table 5 below).

Table 5

Self, Peer and Teacher Rank Data

N = 90

	Mean	St. Dev.	Range
Self	70%	24	4 - 100%
Peer	54%	18	16 - 95%
Teacher	56%	22	11 - 98%

This method is a variation of the Friedman, Friedman and Van Dyke (1984) scoring system wherein the students were asked to only nominate the three people they felt were best suited for the leadership role; thus, students who filled the fourth, fifth and further nomination spots received the same score as those who were the last to be nominated. This writer feels that the differentiation between fourth and last rankings is information too valuable to be discarded. Also, the method used in this study resulted in data for each student.

3) An Assessment of Leadership Skills

The Leadership Skills Inventory (LSI) (Karnes and Chauvin, 1985) is a 125-item, self-administered, Likert-type assessment designed to assist

individuals at the upper-elementary, secondary, and post-secondary levels in analyzing the strength of their leadership skills. The one available form of the LSI is the first part of a three-part Leadership Skills Development Program (Karnes and Chauvin, 1986). The LSI is comprised of nine skill categories determined by the authors to be necessary for the development of leaders: 1) Fundamentals of Leadership (9 items), 2) Written Communication (12 items), 3) Speech Communication (14 items), 4) Value Clarification (17 items), 5) Decision-Making (10 items), 6) Group Dynamics (19 items), 7) Problem-Solving (6 items), 8) Personal Development (21 items), and 9) Planning (17 items). It is an untimed measure administered individually or in a group. All Split-half and Spearman-Brown coefficients of reliability for each category are above .78 indicating that the instrument is quite consistent and Kuder-Richardson coefficients of internal consistency for all categories are above .62. The LSI is viewed as having considerable merit as an instrument for measuring leadership (Eckart, 1988; Kerr, 1988; Lee, 1988). The LSI produces raw scores for each of the 9 categories and provides tables to convert raw scores to T-scores: thus, each student received a T-score for each of the 9 categories and a total score expressed as a T-score (see descriptive data in Table 6 below). The total score was used for all analyses.

Table 6

LSI T-Scores by Category

N = 90

	Mean	St. Dev.	Range
1 - Fundamentals of Leadership	50.9	9.9	20 - 67
2 - Written Communication	53.2	7.6	37 - 66
3 - Speech Communication	51.6	8.6	30 - 69
4 - Value Clarification	52.6	5.4	38 - 62
5 - Decision-Making	52.0	6.6	37 - 64
6 - Group Dynamics	51.2	7.4	43 - 65
7 - Problem-Solving	52.5	8.4	20 - 66
8 - Personal Development	50.3	6.0	24 - 62
9 - Planning	53.4	6.6	39 - 67
Total Scores	467.8	50.3	344 - 575

4) Past Leadership Behavior

A score for evidence of past leadership behavior for each student was derived as follows. Each student was asked to provide two lists of elected or nominated leadership positions that they have held or currently hold and to indicate the number of times they were elected or nominated to each position. The first list contained leadership positions that were school related and the second list contained leadership positions that were not related to school. A panel of 6 education professionals was given a composite list of

the school related leadership positions and a composite list of the non-school related leadership positions and was instructed to differentiate acceptable from unacceptable leadership positions (see Appendix V for a listing of acceptable positions). Each acceptable leadership position for either in-school or out-of-school activity was awarded a score of 1, the sum of which constituted each student's score of past leadership behavior (see descriptive data in Table 7 below).

Table 7

Past Leadership Data
N = 90

	Mean	St. Dev.	Range
In-school	2.3	2.5	0 - 9
Out-of-school	2.6	3.9	0 - 22
Total	4.9	4.8	0 - 22

5) Otis-Lennon School Ability Test (OLSAT)

The Otis-Lennon School Ability Test was designed to provide an accurate and efficient measure of the abilities needed to acquire the desired cognitive outcomes of formal education, sometimes designated "scholastic aptitude" (Otis and Lennon, 1982). Reviews by Dyer (1985) and Oakland (1985) in The Ninth Mental Measurements Yearbook indicate that the OLSAT has a moderate relationship with other tests of intellectual ability.

> There are very commendable features of the test resulting from the vigorous test item development procedures and comprehensive standardization . . . the manual conforms well to the Standards for Educational and Psychological Testing (Dyer, 1985, p. 1107-1108).

Oakland (1985) stated that the OLSAT has its theoretical base in Vernon's theory of general intelligence and is similar in purpose to other tests which purport to assess intelligence. Oakland also reported that the OLSAT is an internally consistent and homogeneous measure, with age range coefficients (K-R_{20}) between .90 and .95. Dyer indicated that the OLSAT correlated .85 with the Wechsler Intelligence Scale for Children-Revised (WISC-R), .58 with the Stanford Binet Intelligence Scale, and .85 to .86 with the Differential Aptitude Test on criterion-related validity.

The OLSAT was administered and scored according to the instructions of the test and each student received an IQ score (see descriptive data in Table 8 below). The sample was divided into high, medium and low IQ groups at natural separations on the IQ continuum and to meet the statistical minimum group size of N = 20.

Table 8

IQ Data by Groups and Gender

N = 90

	Mean	St. Dev.	Range
High N=20	137	4.4	133 - 149
Medium N=47	126	3.3	120 - 131
Low N=23	115	3.8	101 - 119
Males N=45	127	8.1	113 - 149
Females N=45	124	8.5	101 - 143
Total N=90	126	8.4	101 - 149

Instrument Administration

All students responded to each of the above measures during a two week span in the month of October, 1990. The measures were administered in three separate sittings for each of six different groups to comply with the school schedule. The order of administration of the instruments was as follows:

Sitting # 1 for each group

a) The Leadership Skills Inventory was completed (administered first to avoid any practice effect that may result from any of the other measures of leadership), 25-35 minutes;

b) The function of the ELC (Edmunds, 1989) was described and the students were asked to develop a list of new topics (see Appendix I); this allowed the synthesis of the students' topics into the composite list which was the stimulus for the group task in Sitting #2, 10-15 minutes.

Sitting # 2 for each group

a) Self, peer and teacher rankings were recorded (see Appendix III & IV); done at this point to avoid the influence of the activity upon the nominations), 5-10 minutes;

b) The group decision-making activity to select 8 topics from the composite list, 20 minutes;

c) The actual leadership ability score evaluation and the task commitment score (see Appendix II), 5 minutes.

Sitting # 3 for each group

a) Past leadership behaviors were recorded - done at this point because exposure to the leadership activities may have prompted students to remember leadership activities that may have otherwise gone unrecorded, 5-10 minutes;

b) The Otis-Lennon School Abilities Test was administered, 25-35 minutes.

Data Analysis

The sample was too large for some of the tasks required for the study. However, each student was randomly assigned to one of six Social Studies 30 classes by the school, and all six classes were taught by the same teacher. Thus, these arbitrary groups were used to facilitate the administration of the tasks. The only data dependent upon these six

arbitrarily established groups were the Self, Peer and Teacher Rank scores. This has two significant implications for this study:

1) the reduction of the sample to 6 small groups (number of students in Groups 1 - 6 respectively = 15, 23, 10, 11, 13, and 18) enhances the validity of the self, peer, and teacher rankings; a person is more likely to significantly differentiate between members of a small group than a large group; and

2) analyses including the Self, Peer and Teacher Rank scores were restricted to each of the respective groups because of score dependence. All of the other measures were not dependent upon this group assignment.

All of the data were rescored by a Master's degree student familiar with the study and with education research methods. All discrepencies were reviewed and/or revised. Initial interscorer reliability was 97% and with corrections this became 100%.

Statistical Procedures

Administration of the above mentioned instruments produced scores for each measure for every student in the sample. The analyses for each of the 5 research questions is outlined below:

Question 1 - Pearson correlation coefficients for actual leadership, past leadership and the LSI were examined to determine the level of relationship between the measured scores.

Question 2 - Pearson correlation coefficients for actual leadership, past leadership, the LSI and self, peer and teacher ranks were examined by group (1 to 6) to determine the level of relationship between the measured scores.

Question 3 - Pearson correlation coefficients for IQ, actual leadership, past leadership and the LSI were examined to determine the level of relationship between the measured scores. Correlation coefficients for IQ and self, peer and teacher ranks were examined by group (1 to 6) to determine the level of relationship between the measured scores.

Question 4 - IQ scores were grouped (high ≥ 133, N=20; medium = 120 to 131, N=47; low ≤ 119, N=23) and a 1-way ANOVA (Scheffe F - test) was conducted to determine if there were significant differences in performance on actual leadership, past leadership and LSI scores across IQ levels.

Question 5 - Scores were grouped according to gender (males = 45 and females = 45) and a 1-way ANOVA (Scheffe F - test) was conducted to determine if there were significant differences in performance on task orientation, people orientation, actual leadership, past leadership and LSI scores across gender.

CHAPTER IV
RESULTS

In this chapter, the results of the five questions of the study are presented. Findings regarding the five questions and a surprise finding of the study are addressed.

Question 1

Are there significant positive relationships among actual leadership behavior, past leadership behavior and leadership skills (LSI) ?

Results

Pearson product-moment correlation coefficients for actual leadership behavior, past leadership behavior and leadership skills (LSI) appear in the following table:

Table 9

Pearson Correlation Coefficients of Actual Leadership, Past Leadership and Leadership Skills (LSI)
N = 90

	Actual Leadership	Past Leadership
Actual Leadership	-------	
Past Leadership	.272**	-------
LSI	.341**	.389**

** $p < .01$

There are significant positive relationships among actual leadership behavior, past leadership behavior and leadership skills (LSI). It should be noted, however, that the actual level of the correlations is relatively low.

Question 2

Are there significant positive relationships among actual leadership behavior, past leadership behavior, the LSI, and self, peer, and teacher ranks within each of the six groups of students ?

Results

Pearson product-moment correlation coefficients appear by groups in Tables 10A - 10F:

Table 10A

Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Group 1, N = 15

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	-----					-.140
Past	.696**	-----				-.020
LSI	-.092	.048	-----			.627**
SRnk	.226	.449	.651**	-----		.229
PRnk	.190	.511	.374	.547*	-----	.123
TRnk	.244	.524*	.470	.548*	.760**	.321

* $p < .05$ ** $p < .01$

Conclusion

There are several significant relationships among the leadership variables for the subjects of Group 1.

Table 10B

Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Group 2, N = 23

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	-----					.209
Past	.420*	-----				-.003
LSI	.303	.433*	-----			-.110
SRnk	.418*	.524*	.461*	-----		.136
PRnk	.359	.223	.582**	.58**	-----	.208
TRnk	.348	.148	.396	.474*	.841**	.204

* $p < .05$ ** $p < .01$

Conclusion

There are several significant relationships among the leadership variables for the subjects of Group 2.

Table 10C

Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Group 3, N = 10

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	-----					-.188
Past	-.265	-----				-.353
LSI	-.007	.089	-----			.056
SRnk	-.314	-.153	.243	-----		.164
PRnk	.009	-.119	.064	-.021	-----	.824**
TRnk	.352	-.252	.203	.114	.688*	.736**

* $p < .05$ ** $p < .01$

Conclusion

There are several significant relationships among the leadership variables for the subjects of Group 3.

Table 10D

Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Group 4, N = 11

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	----					.226
Past	-.340	----				.388
LSI	.046	.573	----			.356
SRnk	-.303	.579	.093	----		-.039
PRnk	-.134	.558	.566	.520	----	.217
TRnk	.049	.462	.270	.595	.702*	.247

* $p < .05$

Conclusion

There are several significant relationships among the leadership variables for the subjects of Group 4.

Table 10E

Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Group 5, N = 13

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	-----					.547
Past	.684**	-----				.174
LSI	.674*	.606*	-----			.423
SRnk	.795**	.518	.539	-----		.423
PRnk	.816**	.673*	.527	.874**	-----	.610*
TRnk	.759**	.574*	.700**	.576*	.629*	.429

* $p < .05$ ** $p < .01$

Conclusion

There are several significant relationships among the leadership variables for the subjects of Group 5.

Table 10F

Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Group 6, N = 18

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	-----					-.376
Past	.605**	-----				-.126
LSI	.650**	.569*	-----			-.073
SRnk	.398	.679**	.730**	-----		-.005
PRnk	.789**	.592**	.570*	.457	-----	.076
TRnk	.604**	.375	.329	.207	.802**	.102

* $p < .05$ ** $p < .01$

There are several significant relationships among the leadership variables for the subjects of Group 6.

Table 11

Summary of Pearson Correlation Coefficients of Actual Leadership, Past Leadership, the LSI, Self, Peer and Teacher Ranks and IQ

Groups 1 to 6

	Actual	Past	LSI	SRnk	PRnk	IQ
Actual	-----					
Past	**1**,2,**5**,**6**	-----				
LSI	5,**6**	2,5,6	-----			**1**
SRnk	2,**5**	2,**6**	**1**,2,**6**	-----		
PRnk	**5**,**6**	5,**6**	**2**,6	1,**2**,**5**	-----	**3**,5
TRnk	**5**,**6**	1,5	**5**	1,2,5	**1**,**2**,**6** 3,4,5,	**3**
p < .05	**p < .01**					

There was a significant positive relationship between peer and teacher ranks for every group. For some groups, there were other significant positive relationships between actual leadership, past leadership, the LSI, IQ and self, peer and teacher ranks.

1) Group 1 had significant correlations between:
    a) the LSI and IQ;
    b) self ranks and i) the LSI, ii) peer ranks, iii) teacher ranks; and
    c) teacher ranks and past leadership.
2) Group 2 had significant correlations between:

a) self ranks and i) actual leadership, ii) past leadership, iii) the LSI;

b) peer ranks and i) the LSI, ii) self ranks; and

c) teacher ranks and self ranks.

3) Groups 3 and 4 had no other significant correlations.

4) Group 5 had significant correlations between:

a) self ranks and i) actual leadership, ii) peer ranks, iii) teacher ranks;

b) peer ranks and i) actual leadership, ii) past leadership, iii) IQ;

c) peer ranks and self ranks; and

d) teacher ranks and i) actual leadership, ii) past leadership, iii) LSI.

5) Group 6 had significant correlations between:

a) self ranks and i) past leadership, ii) the LSI;

b) peer ranks and i) actual leadership, ii) past leadership, iii) LSI; and

c) teacher ranks and actual leadership.

It is possible that these results are affected by the varying group sizes therefore the results must be viewed as limited to these groups.

Question 3

Are there significant positive relationships between IQ and the four measures of leadership used in the study ?

Results

Pearson product-moment correlation coefficients for IQ and Actual Leadership, Past Leadership and the LSI appear in Table 12 while correlations for IQ and Self, Peer and Teacher Ranks by Group appeared in Tables 10A to 10F, and in summary form in Table 11:

Table 12

Pearson Correlation Coefficients of IQ and Actual Leadership, Past Leadership, and Leadership Skills (LSI)
N = 90

	IQ
Actual Leadership	.059
Past Leadership	-.060
LSI	.220*

* $p < .05$

There is a significant positive relationship between IQ and the LSI but not between IQ and actual or past leadership behavior. For some groups, there were significant positive relationships between IQ and peer and teacher ranks.

Question 4

Are there significant differences in performance on actual leadership behavior, past leadership behavior and the LSI across IQ levels?

Results

The sample IQ data were grouped into three ranges; High ≥ 133 (N=20), Medium 120 - 131 (N=47), and Low ≤ 119 (N=23). Analyses of variance were conducted to see if the arbitrary groupings represented actual IQ score differences. They revealed that there were significant differences between all combinations of IQ groups, $F(2, 87) = 188.0$, $p < .05$ (see Table 13 below).

Table 13

Analysis of Data for IQ Groups

Group	Mean Difference	Scheffe F - test
high vs. med	10.59	58.259*
high vs. low	21.74	187.14*
med vs. low	11.15	71.037*

* $p < .05$

Table 14

Analysis of Data for Actual Leadership, Past Leadership and the LSI Across IQ Groups

Actual Leadership

Group	Mean Difference	Scheffe F - test
high vs. med	-1.39	.884
high vs. low	-.448	.070
med vs. low	.942	.447

Past Leadership

Group	Mean Difference	Scheffe F - test
high vs. med	.064	.001
high vs. low	.217	.011
med vs. low	.154	.008

LSI

Group	Mean Difference	Scheffe F - test
high vs. med	26.05	1.933
high vs. low	25.88	1.454
med vs. low	-.174	9.483

There were no significant differences between IQ groups for the leadership indicators of Actual Leadership, Past Leadership or the LSI.

Question 5

Are there significant differences in performance on task orientation, people orientation, actual leadership behavior, past leadership behavior and the LSI across gender ?

Results

When the data were grouped according to gender (45 males; 45 females), it was revealed that males scored significantly higher than females on task orientation, $F(1, 88) = 4.896$, $p < .05$, and on past leadership behavior, $F(1, 88) = 6.23$, $p < .05$. There were no significant differences between males and females on people orientation, actual leadership behavior or the LSI (see Table 15 below).

Table 15

Analysis of Data for Task Orientation, People Orientation, Actual Leadership, Past Leadership and the LSI Across Gender

N = 90 (45 males, 45 females)

Leadership Indicator	Group Mean	Mean Difference	Scheffe F - test
Task Orientation	M = 38.689 F = 34.911	3.778	4.896*
People Orientation	M = 36.711 F = 37.356	-.644	0.148
Actual Leadership	M = .661 F = .066	0.595	0.517
Past Leadership	M = 6.156 F = 3.667	2.489	6.323*
LSI	M = 474.222 F = 461.444	12.778	1.462

* $p < .05$

Subsidiary Analyses

Validity of the Leadership Skills Inventory

A surprise finding of the study was that all nine components of the LSI had significant correlations with each other. When the initial correlation matrix of the data was constructed, the 9 components of the LSI were not combined; thus, the correlations between the components were discovered (components listed in Table 17). The results appear in the following table:

Table 16

Pearson Correlation Coefficients of the Nine Components of the LSI (L1 to L9)

	L1	L2	L3	L4	L5	L6	L7	L8	L9
L1	1								
L2	.534**	1							
L3	.534**	.722**	1						
L4	.329**	.408**	.566**	1					
L5	.449**	.449**	.587**	.599**	1				
L6	.461**	.598**	.761**	.596**	.711**	1			
L7	.312**	.388**	.453**	.295**	.574**	.489**	1		
L8	.421**	.472**	.611**	.673**	.576**	.629**	.298**	1	
L9	.396**	.439**	.574**	.408**	.604**	.658**	.550**	.602**	1

** $p < .01$ N = 90

The 9 components of the LSI are supposed to be separate entities that examine different facets of leadership. The significant positive correlations found in this study for all 9 components indicate that they have

more in common than the authors of the LSI had previously indicated. Therefore, a factor analysis (StatView 512) was conducted and it revealed that the LSI data contained only 1 factor and not the 9 claimed by its authors. The factor loadings for each LSI component are listed in Table 17 below and are graphically displayed in Figure 1. The Eigen values of the factor analysis are also listed in Table 17.

Table 17

Components of the LSI by Factor

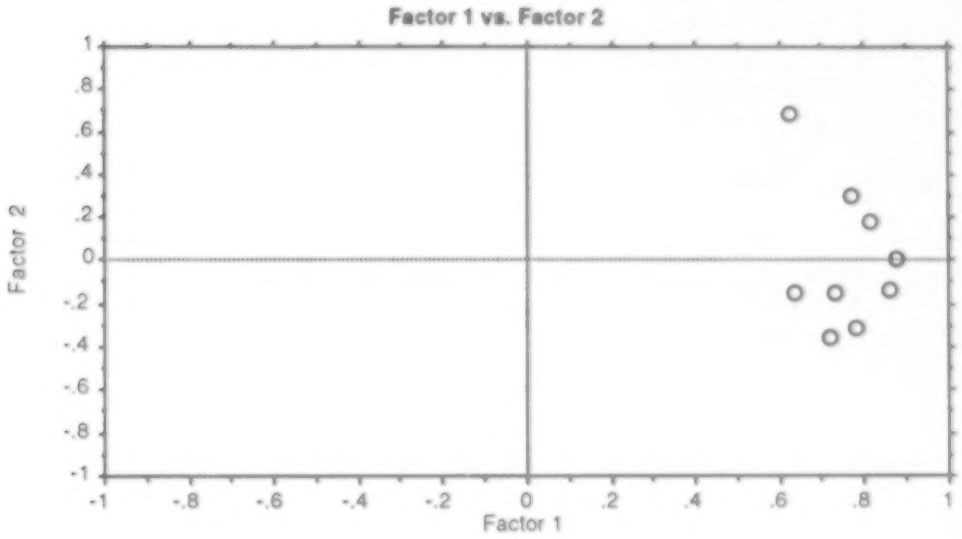
LSI Component	Factor 1	Factor 2
1) Fundamentals of Leadership	.636	-.144
2) Written Communication	.733	-.150
3) Speech Communication	.858	-.131
4) Values Clarification	.718	-.355
5) Decision-Making	.817	.183
6) Group Dynamic Skills	.876	.003
7) Problem-Solving	.625	.685
8) Personal Development	.780	-.306
9) Planning	.769	.297

Eigen Values of LSI Factors

	Magnitude
Factor 1	**5.219**
Factor 2	.871
Factor 3	.85
Factor 4	.536
Factor 5	.497

Figure 1

LSI Factor Scattergraph



Despite the grouping above, there has not been any suggestion in the literature that these components would/should group together in this or any other manner.

The Relationship Between Leadership Nomination and Behavior

Friedman, Friedman and Van Dyke (1984) concluded that if one wanted to identify students most highly gifted in leadership, only those highly rated by self, peer and teacher ranks combined should be selected. Within the six groups of this study, a composite rank nomination was derived by summing the peer rank, teacher rank and self rank scores. These composite scores had a variety of significant correlations with the other 3 leadership scores. The results appear in the following table:

Table 18

Pearson Correlation Coefficients of Composite Nomination Ranks and Actual Leadership, Past Leadership and the LSI by Group

	Composite Nomination Ranks					
	Group 1 N = 15	Group 2 N = 23	Group 3 N = 10	Group 4 N = 11	Group 5 N = 13	Group 6 N = 18
Actual	.255	.436*	-.011	-.182	.882**	.727**
Past	.573*	.355	-.026	.629*	.615*	.680**
LSI	.578*	.547**	.276	.314	.644*	.675**

* $p < .05$ ** $p < .01$

Combined self, peer and teacher ranks had a significant positive correlation with one of the other 3 leadership behavior in all but one of the groups. Again, these results may be affected by group size.

CHAPTER V
DISCUSSION

The present study was undertaken to examine the relationships among leadership indicators in a gifted population. This chapter begins with a presentation of each question, a brief overview of pertinent literature, a discussion of the results and their implications for each of the five questions. This writer also addresses the issues and results of the subsidiary analyses. A summary concludes the chapter, including suggestions for further research.

Question 1

Are there significant positive relationships among actual leadership behavior, past leadership behavior and leadership skills (LSI) ?

It is evident that an accurate indicator of leadership ability is needed (Chemers and Rice, 1973; Hollingworth, 1939; House, 1971; McGregor, 1960; Otey, 1978; Plowman, 1981; Stutzman and Jawetz, 1982). Indicators that have been predominantly used to measure leadership abilities are: 1) instruments, 2) past leadership behavior, and 3) actual leadership tasks, but it should be noted that most have been used separately from each other.

The LSI appears to be the best instrument for measuring leadership (Eckart, 1988; Kerr, 1988; Lee, 1988); however, each professional review has stated the need for further validity research. Past leadership behavior, usually determined by an individual's self report of previously or currently held leadership positions, is also recognized as an excellent measure of leadership ability (Bass, 1981; Kitano and Kirby, 1986; Stogdill, 1974). In

addition, the scoring of a task demanding leadership behavior has proven to be an accurate indicator of leadership ability (Bass, 1981; Friedman, Friedman and Van Dyke, 1984; Stogdill, 1974). Most researchers concur that any measure of leadership should comprise a collection of measures including the three mentioned above (Sisk, 1985). This suggests that each indicator portrays a different component of leadership. An examination of the relationships among these three indicators would reveal whether they can be used separately or should be used collectively.

The results of this study reveal that there were significant positive relationships among actual leadership behavior, past leadership behavior, and leadership skills as measured by the LSI. While the indicators appear to be derived from three different leadership components, they have much more in common than the literature suggests. On the basis of these results, it could be argued that only one indicator needs to be used to measure leadership. However, such a conclusion may be premature because the correlations do not account for enough of the variance between the indicators to suggest that one of the 3 could be used alone. This would appear to confirm much of the literature which supports using a multitude of leadership indicators (Sisk, 1985). On the other hand, because these 3 indicators are derived from seemingly different behaviors, another implication is that leadership curriculum containing elements supportive of each behavior would be using different methods to attain the same goal. This would make leadership curriculum interesting as it would approach leadership from different perspectives such as creativity, role play and commitment and the teaching activities would be a combination of theory, as in the components of the LSI, and practice, as in the actual leadership task. This implies that leadership curriculum should contain elements that: 1)

encourage the assumption of leadership roles, especially at an early age (to increase actual and past leadership); and 2) encourage the learning of different leadership skills and cause children to recognize those skills within themselves (LSI). This indicates support for the notion that leadership skills can be developed and improved by exposure to leadership situations and the practice of specific skills.

Question 2

Are there significant positive relationships among actual leadership behavior, past leadership behavior, the LSI, and self, peer, and teacher ranks within each of the six groups of students ?

Another indicator that has consistently proven to be a valid measure of leadership abilities is nomination to a leadership role by an one's significant peers (Friedman, Friedman and Van Dyke, 1984; Jarecky, 1959; Kitano and Kirby, 1986; Renzulli, Hartman and Callahan, 1971), the most common forms being rated or ranked by 1) self, 2) peers, and/or 3) teachers. From the perspective of this study, this suggests that nomination is a different component of leadership than actual leadership, past leadership or the LSI. Conversely, the literature is clear that self, peer and teacher nominations are minor variations of the same component of leadership (Friedman, Friedman and Van Dyke, 1984; Jarecky, 1959; Kitano and Kirby, 1986). Thus, an examination of the relationships among these indicators would reveal whether they should be used separately or collectively.

The results of this study reveal that there was a significant positive relationship between peer and teacher ranks of leadership behavior for all groups. This suggests that peers and teachers respond in the same manner

when asked to nominate leaders for a specific task. It also appears to suggest that peer and teacher nominations could be used separately, or, collectively with one form of nomination used to verify the other.

There were also a variety of significant correlations among the other leadership indicators for groups one to six.

1) Group 1 had significant correlations between:
    a) the LSI and IQ;
    b) self ranks and i) the LSI, ii) peer ranks, iii) teacher ranks; and
    c) teacher ranks and past leadership.
2) Group 2 had significant correlations between:
    a) self ranks and i) actual leadership, ii) past leadership, iii) the LSI;
    b) peer ranks and i) the LSI, ii) self ranks; and
    c) teacher ranks and self ranks.
3) Groups 3 and 4 had no other significant correlations.
4) Group 5 had significant correlations between:
    a) self ranks and i) actual leadership, ii) peer ranks, iii) teacher ranks;
    b) peer ranks and i) actual leadership, ii) past leadership, iii) IQ;
    c) peer ranks and self ranks, and
    d) teacher ranks and i) actual leadership, ii) past leadership, iii) LSI.
5) Group 6 had significant correlations between:
    a) self ranks and i) past leadership, ii) the LSI;
    b) peer ranks and i) actual leadership, ii) past leadership, iii) LSI; and
    c) teacher ranks and actual leadership.

While there are several positive correlations among the various indicators within each of the 6 groups, none are consistent enough to draw any firm conclusions.

It is possible that the variability across groups may be explained by the different sizes of the 6 groups and the fact that only Group 2 met or exceeded the statistical requirement of N=20. The largest group (Group 2, N=23) had 9 significant correlations, the smallest group (Group 3, N=10) had 3 significant correlations while the largest number of significant correlations (13) occurred in the fourth largest group (Group 5, N=13). Thus, despite a significant correlation between peer and teacher ranks across all groups, this finding is tentative.

Question 3

Are there significant positive relationships between IQ and the four measures of leadership used in the study ?

Above-average intelligence is seen as a characteristic common to leaders in most fields (Karnes and Chauvin, 1986; Parker, 1983; Sisk and Rosselli, 1987; Stogdill, 1974). There is evidence that superior intellect is a necessary component for leadership (Brumbaugh and Roscho, 1959; Freehill, 1961; Gowan and Demos, 1965; Hollingworth, 1939; Jarecky, 1959). There is also evidence that the leader is likely to be more intelligent than the group led (Hollingworth, 1939; Jarecky, 1959; Pasternack and Silvey, 1969) and Hollingworth (1942) placed the leadership range of intelligence between 125 and 144 IQ. There appears to be a relationship between leadership and intelligence and/or different levels of intelligence; thus, it was of interest to determine whether this relationship prevails.

In the overall analysis, there was a significant positive relationship between IQ and the LSI but not between IQ and actual or past leadership behavior. The LSI is a self report instrument; thus, the significant correlation

between IQ and the LSI may reveal the high self-confidence and/or self-esteem often associated with academically capable students. It may be that the actual and past leadership measures are unreliable; thus, no relationship was found between these indicators and IQ. However, this writer discounts this explanation because there is no other way of assessing past leadership, and past leadership had a positive significant correlation with actual leadership. Nonetheless, IQ and actual and past leadership might not correlate when examined within such an academically select sample.

When the analyses were done for each of the 6 groups, there were not enough significant positive relationships between IQ and self, peer and teacher ranks to affirm the relationship; and for reasons stated under Question 2, no conclusions can be drawn.

Question 4

Are there significant differences in performance on actual leadership behavior, past leadership behavior and the LSI across IQ levels?

There were no significant differences in leadership indicator scores across IQ levels. This is surprising given that the LSI correlated with IQ ($r = .22$, $p < .05$). It is also surprising given that the mean IQ differences for the three groups were within the 30 point spread that Hollingsworth (1942) had indicated was preferrable for leadership to occur (high to medium = 11pts.; 2) high to low = 22 pts.; and 3) medium to low = 11 pts.). However, it is possible that the 'low' group (mean IQ = 115), given the theoretical link between IQ and leadership, had better than average leadership skills; thus, there were no differences in leadership indicators across IQ.

Question 5

Are there significant differences in performance on task orientation, people orientation, actual leadership behavior, past leadership behavior and the LSI across gender?

Leadership style has been predominently expressed as: 1) task orientation, a preference for the completion of the task **or** 2) people orientation, a preference for maintaining the social well-being of the group (Bass, 1981; Fiedler, 1973; Isaacs, 1973; Lamb and Busse, 1983; Lewin, Lippitt, and White, 1939; McGregor, 1960; Pasternack and Silvey, 1969; Stogdill, 1974; Tannenbaum, Weschler, and Massarik, 1961).

In addition, research on gender and leadership style has resulted in three prevalent perspectives: 1) males and females do not exhibit different styles of leadership (Bartol and Wortman, 1975; Dobbins and Platz, 1986; Goktepe and Schneir, 1988), 2) males are task-oriented and females are people-oriented in leadership style (Bartol and Butterfield, 1976; Chapman and Luthans, 1975; Dobbins, 1986; Douvan and Adelson, 1966; Gavin and Furman, 1989; Hallinan, 1980; Parsons and Bales, 1955; Savin-Williams, 1976; 1980), and 3) females need to be task oriented to be good leaders (Bartol, 1974; Cann and Siegfried, 1987; Chapman, 1975; Maier, 1970; Megargee, 1969; Russell, Rush and Herd, 1988; Schein, 1975). An analysis of whether there is a difference in leadership style between males and females warranted investigation.

This study found that males scored significantly higher than females on task orientation and on past leadership behavior. The finding that males scored better than females on task orientation is consistent with the research findings of Parsons and Bales (1955) and Savin-Williams (1980). The

finding that males scored better than females on past leadership behavior was a surprise. There is no literature support that such a difference would emerge. A possible explanation for this finding may be that the past leadership behaviors of the sample were predominantly task oriented leadership situations; thus, more were performed by males.

The finding that females did not perform significantly better than males on people orientation is consistent with the literature which states that there is no difference in style across gender; however, it is not consistent with the literature which depicts people orientation as the prevalent female leadership style (Gavin and Furman, 1989; Hallinan, 1980). There were no differences across gender for actual leadership or the LSI. This finding is consistent with the literature.

The implications of these findings are twofold; 1) leadership curriculum should contain task-oriented and people-oriented elements to broaden the leadership style of males and females alike, and 2) leadership curricula should encourage females to assume and/or seek leadership positions during their elementary and junior high years.

Subsidiary Analyses

There were significant correlations between actual and past leadership and the LSI. Initially, this appeared to support the validity of the LSI because it showed that the LSI was measuring elements that had been accepted as valid leadership measures. However, the surprise finding that all 9 LSI components significantly correlated with each other and that the LSI only has one factor would appear to refute this observation and further question the validity of the LSI.

It has been indicated that combined self, peer and teacher ranks are the best rank indicator of leadership. The results of this study reveal that combined ranks correlated significantly with at least one of the other leadership indicators in all but one of the 6 groups. While these results are tentative because of small group sizes, it appears safe to say that combined ranks are a significant leadership indicator and warrant closer examination.

Summary

Numerous researchers have examined the many facets that comprise the construct of leadership. The forces that stimulate such inquiry are the increasing demand for good leadership; the implementation of leadership programs in schools, whether that be as separate courses or integrated into the regular curriculum; and the need for proven leadership indicators to identify those who could benefit from leadership training and to determine the effectiveness of leadership programs.

Most often, gifted students are selected to participate in leadership programs. The literature abounds with strong, yet fragmented, links between intelligence and various leadership indicators and leadership behaviors. The same can be said for the links between gender and leadership. Research examining these variables collectively is lacking, particularly within a gifted high school sample. If it could be shown that particular relationships or non-relationships existed among the indicators listed above, the construct of leadership would be strengthened. As a result, 1) the identification of leaders and/or non-leaders could be simplified, 2) the leadership indicators which proved effective could be used to evaluate the progression of leadership skill learning, and 3) leadership programs could

be enhanced because teachers could emphasize the pertinent components of leadership indicators without wondering about their usefulness.

This project sought, as its primary goal, to determine if specific relationships existed among several leadership variables. Secondary goals included an examination of whether differences existed across IQ or gender for the same leadership variables.

The population sample consisted of 90 academically gifted Grade 12 students. All students (45 males; 45 females) responded to measures of intelligence (OLSAT), past leadership behavior, actual leadership behavior, leadership skills (LSI), peer and self leadership ranking and all received a leadership ranking from 4 teachers. These measures were administered over a two week period. Each measure was scored according to its respective manual instructions and/or acceptable specific scoring directions.

The results reveal that there were significant positive relationships among actual leadership, past leadership and the LSI. There was a significant positive correlation between peer and teacher ranks for all six groups but there were no other consistent relationships within the six groups. There was a significant positive relationship between IQ and the LSI but not between IQ and actual or past leadership behavior or IQ and self, peer and teacher ranks. There were no significant differences across IQ levels for the four leadership indicators. Males scored significantly higher than females on task orientation and on past leadership behavior; however, there were no differences across gender for the other leadership variables, including IQ.

These results would appear to indicate that each leadership indicator, as used and operationalized in this study, is necessary to measure leadership. Similarly, it would appear that if nomination were selected as a

leadership indicator, using peer and teacher ranks together may be redundant; however, both could be used for verification purposes. Self rank also appears to be an important indicator, despite the fact that it did not correlate consistently with other measures: an individual who does not self-nominate would be a reluctant leader - - nearly the opposite of the "confident, persuasive, determined, etc. . ." leader valued by society. In summation, based on this study, if one wanted to measure leadership, one would collectively use: 1) actual leadership or past leadership or the LSI, and 2) peer or teacher ranks, and 3) self ranks.

Also, it appears from these results that IQ plays a role in leadership behavior but it does not appear to be as singly dominant as the literature portrays. This writer would rather portray IQ as a vital tool for learning and acquiring better leadership skills and for learning to deal with different types of leadership situations.

There were differences between males and females on leadership style and past leadership behavior. While these findings are significant, they reveal a need for closer examination of leadership programming lest those programs become, or possibly continue to be, biased.

Recommendations for Future Research

Further study of leadership is warranted and necessary if educators want to teach components that have meaningful impact upon developing leaders. The significant positive relationships among actual and past leadership and the LSI provide an opportunity for researchers to examine the effects of leadership programs using all three indicators or combinations thereof. It is also possible that a detailed factor analysis of the data of this study might produce leadership factors that amalgamate and/or complement

those derived from the LSI. In addition, it is evident that more rigorous analysis of the LSI is needed. This could be done by a factor analysis of the 125 items contained in the LSI instead of the analysis of the 9 components as done in this study. The fact that the 9 components grouped into one factor indicates more validation and/or research is needed.

Another area that warrants investigation, would be to examine whether self, peer and teacher rankings differ from task to task as suggested by Fiedler's (1967) contingency model of leadership.

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APPENDIX I

INTERESTING TOPICS

Name:_____

An interesting way to study and learn about specific topics of your school courses is to bring in an expert from the community. With assistance from your teacher, this person would lead you in a session that is specifically focused around their expertise **and** the topic that you are covering.

An example of this is a section we did in social studies that dealt with the law. A judge with ten years experience led us through the trial of Goldilocks for crimes she committed against the three bears. I was the teacher and I made sure that the judge specifically dealt with information that was relevant to what we were doing in our social studies law section. The judge helped provide details of how and where to do the research, what evidence could be admitted, if rights were violated, how things proceed in a courtroom and finally, as the judge for the case, he interpreted the law for the jury so they could come to a decision. The students researched the law and played the parts of the lawyers, the jury, the witnesses and the audience. When it was over, the judge, the students and I had an informal discussion about what we had learned and what we thought the benefits of this exercise were. We agreed that this was an exciting and informative way of learning.

On the front and back of this sheet of paper, you are to list **all** of the session topics that you would like your classes to participate in. **The topics can be from any subject area that you are interested in learning about in this way.** An example of how to list your topics is the Goldilocks session mentioned above which could be listed as "trial law". Try to think of as many different, interesting and unusual topics as possible. Try to think of topics that no one else will think of and remember, they can come from **any** area of interest.

You have 10 minutes. During this time, try to keep thinking of ideas for topics, but if you run out of ideas before ten minutes is up, just sit and wait until time is called. If you have any questions after we start, do not speak out loud. Raise your hand and we will come to your seat and try and answer your questions. Are there any questions before we start? All right, go ahead! You will have ten (10) minutes.

APPENDIX II

GROUP ACTIVITY

Name:_____

Please evaluate each of your group members on the following statements and indicate their score on the 5-point scale.

1) They helped the group to get the job done well.

People in the Group	1= Little				5=Lots
1) _____	_____	_____	_____	_____	_____
2) _____	_____	_____	_____	_____	_____
3) _____	_____	_____	_____	_____	_____
4) _____	_____	_____	_____	_____	_____
5) _____	_____	_____	_____	_____	_____
6) _____	_____	_____	_____	_____	_____

2) They helped the group to feel good about working together.

People in the Group	1= Little				5=Lots
1) _____	_____	_____	_____	_____	_____
2) _____	_____	_____	_____	_____	_____
3) _____	_____	_____	_____	_____	_____
4) _____	_____	_____	_____	_____	_____
5) _____	_____	_____	_____	_____	_____
6) _____	_____	_____	_____	_____	_____

MY COMMITMENT

I would be willing to devote the following hours of work to help prepare and implement the 8 topics selected.

Circle One

1 2 3 4 5 6 7 8 9 10

APPENDIX III

Sample Student Leadership Rank Key

In this exercise you are to rank each student on this list including yourself as to who you think would be the best leader of a committee to plan and implement the topics.

1) Select your top five and rank them; write their names in the 1 to 5 spaces in the right hand column.
2) Select the bottom five and rank them; write their names in the 21 to 25 spaces in the right hand column.
3) Select the next top five and rank them; write their names in the 6 to 10 spaces in the right hand column.
4) Select the next bottom five and rank them; write their names in the 11 to 15 spaces in the right hand column.
5) Rank the remaining names and write their names in the 16 to 20 spaces in the right hand column.

Alphabetical Class List	Right-Hand Column
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

APPENDIX IV

Sample Teacher Leadership Rank Key

In the left-hand column below you will find an alphabetical listing of your 17 students. In this exercise you are to rank each student on this list as to who you think would be the best leader of a committee to plan and implement the topics they generated.

PLEASE FOLLOW THESE INSTRUCTIONS:

1) Select the **top five leaders** and rank them 1 to 5; write their names in the #1 to 5 spaces in the right hand column with the best being #1.
2) Select the **worst six leaders** and rank them 1 to 6; write their names in the #12 to 17 spaces in the right hand column with the worst being #17.
3) Rank the **remaining six leaders** 1 to 6; write their names in the #6 to 11 spaces in the right hand column with the best being #6.
4) Please make sure you have used every name on the list and have not used any name twice.

Alphabetical Class List	Right-Hand Column
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

APPENDIX V

Acceptable Leadership Positions

Out-of-School

4H group leader
Adventures in Citizenship Ottawa
Alberta Girls Parliament - member
Assistant Brownie pack leader
Assistant camp leader
Assistant captain - hockey
Assistant captain - Ringette
Assistant church Scout
Assistant patrol leader, Girl Guides
Baseball A-captain
Basketball coach
Boy Scout leader
Brigade (Boys Club)
Brownie leader
Canadian Armed Forces/Naval reserve Divisional Leader
Captain - ball hockey
Captain - baseball
Captain - community soccer
Captain in Cadets
Captain K of C hockey
Captain of baseball team
Captain of Gymnastic team
Captain of hockey team
Captain of "MAC Days" team
Captain of soccer team
Captain of swim team
Captain of field hockey team
Captain- community basketball
Captain: ERTC Club Racing team
Captain of lacrosse
Children's Show coordinator
Church Youth Group President
Coach of lacrosse
Coordinator/choreographer of Hip Hop dance group
Cub Scouts 6-pack leader
Edmonton Police Venturers Sergeant
Edmonton Youth Orchestra, assistant leader
Employee trainer
Explorer leader
Fashion show organization
Forum for Young Canadians Ottawa
Founder: St. Albert Bicycle Club
Girl Guide leader
Global Awareness weekend
Group leader (Rotary Youth Leadership)
Group leader at camp (counsellor)
Head Page at Legislature
In charge of Day Care
Junior Achievement President
Lacrosse assistant captain
Lacrosse instructor
Leader of church Youth Group
Leader in Training (Parks and Recreation)
Leader of Cub group
Leader of guitar - church group
Leader of orchestra
Led group in controlling ticket sales for city-wide dance
On the board of "Tools for Peace"
Organizer of Teen Group
Organizing events of Extended Care Centre
Pathfinder leader
Pioneer Girls Platoon leader
President of church Youth Group
Representative of the swimmers to the executive of the swim club
Ringette captain
Skipper - sailing boat
Soccer coach
Social Convenor church Youth Group
Sunday School teacher
Swimming instructor
Teach 4 piano students
Teaching dancing
Teaching to read Arabic
Team captain - ERTC cycling team
Team leader for Summer Youth Volunteer Program at Red Cross
Train new employees
Venture leader
Vice president of Youth Group
Youth group executive

In-School

Assistant captain - Reach for the Top
Assistant captain - basketball
Assistant captain - soccer
Assistant captain - volleyball team
Assistant director of play
Astronomy Club organizer
Awards Committee organization
Basketball captain
"Big" role in school play
Captain - Crossing Guard
Captain - football
Captain - Hi-Q
Captain - volleyball
Captain - West J.P. baseball
Captain of Dirt Days team
Captain of girls soccer team
Captain of Intramural basketball team
Captain of intramural team
Captain of Patrols
Captain of senior girls track team
Captain of track and field team
Chairperson - MAC Open House
Chairperson for Social Justice
Chosen by MAC to go to annual Leadership Conference
Class captain
Class leadership award
Class Rep
Class Rep - Grad Council
Class Rep - Student Council
Class Rep for Grad Committee
Class valedictorian
Co-captain of volleyball team
Co-senior debater
Committee Save "MAC" Organization of Students
Coordinator of tournaments in school
Environmental Conference with David Suzuki
Female lead in school play
Forming of Environment Group
Founding member of Retreat Group
Founding member of Spirit Club
Good Shepherd Award (for leadership and friendship)
Got a school newspaper started
Grad Committee
Grad President
Head of volunteers for basketball tournament
Helped coach girls volleyball team
Helped organize MAC Day
Helped organize Talent Night
Hi-Q captain
I.A. Foreman
In charge of organizing cafeteria help
Intermural team captain
Intramural captain for soccer, volleyball
Junior volleyball captain
Lead role in school play
Leadership Conferences
Library Club President
Lieutenant - Crossing Guard
MAC Rep Ryla Leadership Conference
On Executive for Environment Club
On Executive of SCREAM (environment)
Organized and spoke at Talent Night
Organized dance
Organized last year's graduation
Organized Slave Auction
Organizer of school running club
Organizing Youth Conference
Part-time help with kindergarten
Peer Support
President - Spirit Club
President of the class
Public Relations - Student Council
Reach for the Top captain
Represent MAC at environment conference
Representative to Alberta 1990 Rotary Youth Conference
River Valley Clean Up Club
Science Olympic team leader
SCREAM Executive
Senior basketball captain
Senior Class President
Senior Class Rep
Senior Class Room Rep
Senior Class Vice President
Senior Council Rep
Senior men's volleyball captain
Senior soccer assistant captain
Senior soccer captain
Senior volleyball captain
Social Convenor
Social Justice Club Rep for a 2 day conference
Social Justice/Leadership Conference
Spirit Club Executive
Spirit Club President
Sports captain
Stage Manager
Student Council - Class Rep
Student Council - President
Student Council Vice President
Student Union Vice President
Student's Union Room Rep
Tartan Quarterly Chief Editor
Taught swimming
Teacher - Drama
Teaching disabled
Teaching grade 5
Valedictorian
Vice President - Grad
Vice President - Spirit Club
Vice President - Student Council
Yearbook editor
Yearbook layout editor
Yearbook President

Appendix VI

Interesting Topics by 17 Groups

1) GENERAL INTEREST

adolescence
aging/old aging
aliens
anal sex
animal lover
aphrodisiacs
autistic people
attracting the opposite sex
basket weaving
birds and bees
birth
blue skies
brain/mind
caffeine - friend/foe
calories
cannibalism
career choices
careers
celibacy
channels of communication
childbirth/bearing natural
CIA
codes
creation versus evolution
crime statistics
current events
dancer's anatomy
death
debating
different times of man's existence
divorce versus marriage
ebony
effects of IQ tests
effects of stress
efficiency
elitism
emotions
essence of time
evil
existence
exploration/adventure
extermination
fairy tales
farms
fear
feelings
first humans
flowers
free economy system
friendship
frustration
future
future lifestyles
garden
genders
goal of life
gold
graveyards
group sex
guns
hair/growth
hate
healthy sex habits
heredity
holograms
homosexuals
hookers
how to become an astronaut
how to gamble and win/649
how to protect yourself from dangerous animals
how to put together a magazine
how to study
idiocy
impacts of WW II
ivory
jewelry design
job interview
kissing
kite design
Lamaze classes
leadership
life
life after death
lottery winner
love/relationships
loyalty
making babies
marriage
memory
menopause
menthol
metals
migraines
our ancestors
pain
passion
peace
personality traits
"pi"
plane instruction
possible WW III
pottery
puberty
reading improvement
rebellion
risk taking
road kills
scientific careers
schizophrenics
sea shell
sex
sewage dept
shoes
shining silverware
sleeping/dreaming
speed reading
speed zones
stories of our parents
stress
success
sunglasses
symbolism
teeth
theory of life/meaning of life
using a compass
using the library
water
weaponry
winter driving
wool
wrinkles in skin

2) Profession/Occupation

actors
advertiser
Air Force commando
Air Force pilot
airplane pilots
airport planner/engineer
anesthesiologists
animal expert
anthropologist
archery expert
architect
astronauts
athletics coach
authors
bicycle mechanic
biochemist
biologist
boat builder
brain surgeon
building supervisor
business managers
Canadian writers
car manufacturer
carpenter
cattle rancher
chemist
cigarette manufacturer
city planner
computer programmer
construction worker
cow farmer
dentist
designer/car
dietitian
doctor
dolphin trainer
draftsman
economist
electrician
engine builder
engineer
environment minister
farmers
female construction worker
fencer
financial analyst
fireman
fish expert
forest fire fighter
forester
frogmen
garbage men
general practitioner
geneticist
geologist
gynecologist
hang glider instructor
health expert
helicopter pilot
hibernation expert
historians
hog farmers
horse breeder
inventors
laboratory technician
landscaper
male nurse/nurse
marine biologist
marsupial expert
mechanic
medical engineer
models
money expert
morgue worker
mortician
negotiator of U. N..
neurologist
newsman
newspaper editor
novel/journal writer
nuclear physicist
nutrition expert
OB/GYN
paramedic
park ranger
pediatrician
pharmacist
physiotherapist
pig farmer
pipe fitters
politicians/political leader
producer TV/film/play
psychiatrist
psychologist
radiologist
ranger
refrigerator repairman
scientists
shuttle designer
skin doctor
sound technician
special effects designer
stock broker
taxidermist

tomato farmer
veterinarian
wildlife conservationist
woodsman
writer
X-ray nurse
zoo worker

3) DISCIPLINES

4th dimension topology
accounting
acting
advertising
aeronautics
aerospace
aerospace engineering
Air Force
air traffic controlling
airplane design & aerodynamics.
anatomy
anthropology
archaeology
architecture
Armed Forces
Army
astrology
astronomy
astrophysics
Australian marine biology
automotives
aviation
banking
biochemistry
brain surgery
broadcasting
building skyscrapers
Canadian Navy
car design/maintenance
/manufacturing
carpentry
cartography
child development
civil engineering
clinical psychology
coal mining
Coast Guard
counseling/
psychology
dentistry
designing clothes
doctoring
ecology
economics
electrical studies
electricity
electronics
engineering
epidemiology
epilepsy
evolution of man
evolutionary process
Faculty of Medicine
family counseling
farming
film making
genetic engineering
genetics
geography
geology
helicopter instruction
home economics
horse breeding
house building
house design
human behavior
hydroponics
Infantry
journalism/foreign correspondent
locating zinc reserves
making of records
making rock videos
marine biology
mechanics
medicine
different branches of medicine
meteorology
microbiology
Navy
neuropharmacology
neurosurgery
novel writing
nuclear chemistry/physics
numerology
nursing
nutritional science
oceanography
optical physics
organometallic chemistry
pediatrics
pharmacy
photography
physiotherapy
plastic surgery
producing a play/album/film
psychiatry
psychology
Pythagoreans
quadrilateral circles
quantum electrodynamic
quantum mechanics
quantum physics
radiology
ranching
reporting
sewage/waste management
shoe design/manufacturer
space shuttle engineering
statistics
taxidermy
television production
/broadcasting
veterinary medicine
wine making
zoo keeping
zoology

4) SPORTS

100 Meter sprinting
acrobatics
archery
athletic training
badminton
ball hockey
baseball
basketball
beach volleyball
billiards
boating
bowling
boxing
bunji jumping
canoeing
chess
cliff hanging
cliff jumping
cross country skiing
cycling
cycling racer
darts
deep water diving
diving
downhill skiing
figure skating
field hockey
fishing
football
Formula One racing
games
gliding
golf
gymnastics
hang gliding
heli-skiing
hiking
hockey
hockey equipment
hot air ballooning
hunting
ice skaters
jet skiing
kayaking
lacrosse
lawn darts
lotteries
marbles
Martial Arts
motor biking
motorcycling
mountain biking
mountain climber
mountain climbing
Olympic Games
parachuting
parasailing
pinball
ping pong
racquetball
road bike racing
rowing
rugby
sailing
scuba diving
shuffleboard
skateboarding
skidooing
skiing
skydiving
snowboarding
soccer
softball
speed skating
sport fishing
surfing
swimming
table hockey
table tennis
tennis
volleyball
water polo
water sports
water skiing
weight lifting
wrestling

5) SOCIAL ISSUES

aboriginal rights
addicts/drugs/alcohol
adoption
AIDS and STDs/sex related
alcohol use and misuse
alcoholism
animal rights
animals in zoos
battered women
birth control
Black Market
child care
condoms in schools
discrimination
divorce rate
drinking and driving
drug abuse/use
drunkenness
environmental clubs
environmentalists
bioethics
ethics/medicine

euthanasia
Gay society
homeless
homophobia
homosexuality
how to help third world
how to stop women's stereotypical portrayals on T.V.
human rights
hunger in Third World
immigration
incest
Indian land claims
industrial waste
interracial families
KKK
LSD users
mental abuse
morality/ethics
murder
nuclear waste
organized crime
poverty
prejudices
race/racism
surrogate mothers
turbans for RCMP
unemployment
unethical genetics
war victims
whales in captivity
wildlife conservation
women's rights
world hunger
world peace

6) POLITICS/LAW

American foreign policies
Apartheid
Arab point of view
Charter of Rights
Cold War
Communism
Communist
Communist Russia
Constitution
copyright
crime in Canada
criminals
current political events
democracy
development of Vietnam situation
dictator
diplomat
East-West relations
federal affairs
foreign affairs
German unification
global differences
government
Hebrew point of view
international affairs
IRA
Iraqi crisis/Gulf crisis
justice
Korean War
law and order
laws on drugs
local politics
Meech Lake
Moslems
municipal affairs
Nazi war criminals
parliamentary democracy
parliamentary process
peace settlement
provincial affairs
Quebec versus Canada
South African situation
Soviet Union
situation with China
socialist
Oka crisis
Vietnam War
theocratic government
Ugandan politics
war/tactics
WW II (nuclear)
WW II
WW III
Zionism

7) MEDICINE/HEALTH

arthrascopic surgery
artificial mammary implants
athletic massage
autopsies
autosomal chromosomes
beverages and nutrient values
biochemistry of DNA/RNA
birth defects
brain transplants
breasts
cancer
cancer cells
chemotherapy and hair loss
cholesterol
condoms/use of
CPR
cure colds/diseases
diabetes
diets/nutrition
diseases
effects of radiation
effects of suntanning
exercise
exercising
fitness
healing
health
health habits
healthy mind and body
heart surgery
hemophilia
hormonal content of blood
hormones
inner ear bacteria
liposuction
malnutrition
mental illnesses
mouth-to-mouth resuscitation
nutrition
plagues
schizophrenia
smoking
surgery/brain
terminal illness
test tube babies
vegetarianism

8) SPACE AND SCIENCE

acceleration
advanced counting on fingers
animal behavior experiments
ballistic dynamics
black holes
building things out of popsicle sticks
carbonization of pop
chemical warfare
chemical/physical demonstrations
dissection of animals
Earth
effect of secondary magnetic poles on Earth and tides
Einstein's theories
Einstein - proof E=MC2
flight/flying
inert atmospheres in chemical reactions
invisible ink
galaxy
life on Mars/planets/moon
light/year/sound
magnetic fluctuation
melting ice cream
moon
NASA
natural energy forms
nuclear energy/power
nuclear war
Outer Space
petroleum distillation
pH levels of shampoos
physics of water skiing
planets/space/stars
propagation of light
radiation
relativity
solar energy
solar systems
space/NASA/flight /programs/trips
sun
stars
Universe
water boiling
why we see colors
zero gravity

9) TECHNOLOGY

advantages of ziplock bags
artificial intelligence
atomic bomb
automobile production
bike frame geometric design
computer chips
computer graphics
computer technology
computers
computers in business
computers in school
darkroom developing
electroencephalographic technology
electronic devices
how televisions work
how things work - the Space Sciences Center
how to work a camera
inventions
laser shows/radar
lunar photography
mammary x-ray technology
NMR scans
radio
recycling technology
satellites
simulated flight
sound system/stereo
space shuttle computers
technology
telephone answering machine
telephone communication
telephone hacking
telescopes/design
VCRs

10) GEOGRAPHY/ENVIRONMENT

acid rain
Amazon Basin
Amazon jungle
beaches
cash crops of Columbia
corals

cow emissions effects on ozone layer
earthquakes
effects of asphalt on environment
effects of weather
environment
environmental alternatives
environmental issues
environmental options
forest fires
future environment
Galapagos Islands
global environment
Greenpeace activities
growth of trees
landfill problems
leaves
life in the Amazon
Madagascar
mountainous regions
nature
need for rain forests
Nile River
nurseries/plants
ozone/layer
plants/herbs
rain forest
recycling
rock formations
salt mines
saving environment
seas
smog
trees
waste disposal
zoology and ecology

11) ANIMALS

Amazonian tree frog
amphibians
animals
aquatic animals
beasts of the environment
breeding horses
breeding rabbits
bugs
Canada's birds
Canada's bugs
catching turtles
cats
chimpanzees
dinosaur fossils
dinosaurs & prehistoric animals
dogs
dolphins
donkey
elephants
endangered species
exotic animals
extinct species
extinction of wildlife
fish in seas
flying fish
goldfish and parasites
horses
internal organs of turtle
killer whales
life cycle of flea
mating of lice
monkey
panda bears
primates
pterodactyls
reptiles of the Amazon
sharks
snail mating rituals
species proliferation
tropical animals
whales
wildlife
wolves

12) HUMANITIES/ARTS

Aristotelian philosophy
books
complete understanding of Shakespeare
creative writing
cultural backgrounds
cultural differences
drawing
English culture
essential skills for reading Chaucer
folklore
Gaelic mythology
great music masters
great writing masters
history of French Revolution
Huttentes
influences of music
language
life in different countries
literature
lyrics
music composition
musical influence
Naziism
Nietzschian philosophy
play writing
poetry/psychedelic
public speaking
Shakespeare readings
short stories
speech prep
story of Icarus
theater
writing

13) BUSINESS/FINANCE

bankruptcy
big business in Alberta
big business in Canada
big business in Edmonton
budgeting money
business
business management
business of the wealthy
capitalist
consumer good spending
economic policies of Canada
entrepreneurs/ship
failure in business and industry
free economy system
GST
hotel management
how to handle money
how to manage a company
how to run a business
how to set up a restaurant
income tax
international business
buying a home/car
merging companies
money/investments /management
music business
oil business
oil prices
real estate
stock market
stock exchange
stocks

14) ENTERTAINMENT

animation
British comedy
Broadway
cartoons
classical music
comedy
entertainers
game shows
live theater
media
movie review
movies
music
mystery books
percussion workshop
rap music
reading
rock music
soap operas
special effects movies
television
videos
watching cartoons

15) PHYSICAL OBJECTS

aircraft
airplanes
appliances - tune up
balloons
baseball stadiums
beer factories
Bismarck
car phones
cars/modern/new
dinosaur parks
horse track
hospitals
hot air balloons
Esso Oil refinery
racing cars
space shuttle
theaters
zoo's of the world

16) FOOD/BEVERAGES

alcohol
canned fish
cheddar cheese
cheese mold
chocolate bars
cooking
edible parts of animals
edible plants
fermented beverages
food
French fries
health food
herbs
wine

17) FAMOUS PEOPLE

Adolf Hitler
Beatles
Beethoven
Bob Dylan
Brian Mulroney
Cinderella
Don Getty
George Bush
Mikhail Gorbachev
Iraqi president
Saddam Hussien
Michael Wilson
Mohawk warrior